

California State Journal of Medicine.

Owned and Published Monthly by the

Medical Society of the State of California

PHILIP MILLS JONES, M. D., Secretary and Editor
PUBLICATION COMMITTEE

Fayette W. Birtch, M. D.	René Bine, M. D.
Wm. P. Lucas, M. D.	Sol. Hyman, M. D.
Advertising Committee:	
R. E. Bering, M. D., Chairman	
Thos. E. Shumate, M. D.	

ADDRESS ALL COMMUNICATIONS

Secretary State Society, State Journal, Official Register,	Butler Building, San Francisco.
--	------------------------------------

Telephone Douglas 2537

IMPORTANT NOTICE!

All Scientific Papers submitted for Publication must be Typewritten.

Notify the office promptly of any change of address, in order that mailing list and addresses in the Register may be corrected.

VOL. XII SEPTEMBER, 1914. No. 9

EDITORIAL NOTES

THE OSTEOPATHIC SITUATION.

The JOURNAL has already printed an official statement of the fact that the many "drugless healers" were energetic in their efforts to secure an initiative on the ballot at the next election, their proposed law being one which practically does away with all control of medical standards in the matter of license to practice, and would also allow Osteopathic and other similar schools to grant the degree of doctor of medicine, etc. The "Los Angeles County Osteopathic Association" is at the top of a circular letter dated July 16, 1914, which letter was apparently sent to a number of people with a request that they get signatures to the enclosed petition to the Governor, asking him to do many things. In this circular letter, Dr. Brown, Dr. Pinkham, Dr. Loos and Dr. Buteau come in for special attack and part of the request is that the Governor make other appointments when the term of office of the last three expires in September. Some of the statements in the letter are illuminating, if true. For instance, it states that a committee of the Osteopaths waited upon the Governor to explain "the intolerable" situation—Osteopathic schools not being recognized as medical schools by the Board of Examiners! The committee waited on the Governor and "reports that he gave them a thoroughly sympathetic hearing and unconditionally expressed his disapproval of the action of the majority of the board. He even went so far as to intimate that if they persisted in such attitude, it would mean the unquestionable overthrow of the law at the coming

legislature and the enactment of one which in many respects is less desirable from all standpoints, but which is made necessary by the impossibility of securing a square deal on the part of the regular medical appointees. The terms of three of these unfair members of the board—Drs. Brown, Loos and Buteau—expire September 1st. We believe that the signatures of 10,000 voters of California can be promptly placed in the hands of the Governor, protesting against such actions as have been taken and petitioning the Governor for substantial relief." The Governor is a very well educated man and an able lawyer; he certainly must understand the benefit to the people of having properly educated and qualified medical practitioners to attend them in sickness and accident. But the pressure of "10,000 voters of California" is quite considerable, especially in such a troublous campaign as is at present going on. However, the Governor has so often announced his appreciation of his first duty to the whole people of the state that we may hope for his taking a right attitude.

OUR DELEGATES AT THE ATLANTIC CITY MEETING.

A member of our Society who was present at all the meetings of the Delegates of the A. M. A., has sent in the following statement of his views and observations:

"It has occurred to me that a brief account of the splendid work of the California delegates at the recent meeting of the American Medical Association at Atlantic City would prove acceptable to your readers. As an interested spectator throughout the Thursday afternoon session of the House of Delegates at which the election of officers and selection of the next place of meeting took place, I had the privilege of seeing our representatives play the game and win out on every count.

"Drs. V. G. Vecki, H. Bert. Ellis and Geo. Hare, the California delegates, sat together, taking no active part in the proceedings until the interests of their own state became an issue. When nominations to fill the vacancy in the Board of Trustees made by the expiration of the term of office of Dr. Philip Mills Jones were called for, he was promptly named to succeed himself, only one other nomination being made. The first ballot resulted in a tie. Then our boys got very busy and the second ballot landed our Secretary-Editor in his old berth by a safe margin. This happy result should be and undoubtedly is most gratifying to our Society and to the profession of the state at large.

"The matter of the next place of meeting came up on the report of the Standing Committee on Transportation and Place of Meeting. This report unanimously recommended Chicago for the 1915 meeting, thus placing a heavy handicap on San Francisco. Dr. Vecki immediately moved that the report be amended by substituting San Fran-

cisco for Chicago, and proceeded to speak in eloquent terms of the former's claims. A merry war now developed. Many speeches were made, mostly in opposition to San Francisco, and the sentiment seemed to be rapidly crystallizing in favor of Chicago. When the cause seemed practically lost, Hare of Fresno was recognized by the chair. He had been quite ill the night before and was then so weak that he was compelled to support himself by the back of a chair; but his mind certainly worked clearly and rapidly. With convincing logic he analyzed the situation, pointing out the true significance of the Panama-Pacific Exposition with reference to the subject and emphasizing that the civilized world was ready and waiting to pay tribute to the American Medical Association on that occasion as representing the one factor which had rendered this modern triumph possible. 'That is the great reason,' he continued, 'why this association should meet in San Francisco next year. The honor will be there for you, gentlemen. Take it or leave it. But do what you do with your eyes open.' He had sounded the psychologic note at the psychologic moment. The effect was instantaneous. The question was at once put to vote and San Francisco was 'it' by a large majority. Great work, it seemed to me, which the profession can not fail to appreciate.

A. B. C."

THE STATE UNIVERSITY ESTABLISHES A GRADUATE SCHOOL AT LOS ANGELES.

Announcement has been made by the Regents of the University of California, that commencing on July 1, 1914, the Los Angeles Medical Department of the University of California would discontinue under-graduate instruction to third and fourth year medical students, and would hereafter confine its work to instruction to graduates of medicine. By taking this step, the Regents have concentrated the work of under-graduate instruction of the State University at Berkeley and at San Francisco; the premedical work of collegiate grade, and the first two years of the medical course proper being given at Berkeley, and the clinical work of the last two years being carried on at San Francisco at the Affiliated Colleges.

The decision of the Regents to make a school for graduates of medicine of the Los Angeles Medical Department was taken upon the recommendation of the faculty at Los Angeles, it being felt that it would be an unwise economical duplication of effort for the State University to carry on under-graduate instruction, under present conditions, at both San Francisco and Los Angeles, since the income which could be turned to the Medical Department of the State University at this time was limited.

The dispensary clinics and the hospital facilities of the Los Angeles Medical Department are very large, and it was believed that the opportunities for clinical work were sufficiently great to warrant the establishment of a school for graduates of medicine, the aim of which would be to permit

members of the profession who wish to get increased medical experience and skill, to have an opportunity to do this work in the Southwest. It seems to us that this arrangement is one which at the present time is in line with the best interests of medical education in California, and we trust that this new departure will meet with the success which it deserves. The Dean of the under-graduate department of the Los Angeles Medical Department, Dr. W. Jarvis Barlow, having resigned, the Regents have elected Dr. George H. Kress, Dean of the new graduate school.

MILITARY SURGERY.

The Journal of the A. M. A. in its issue for August 1, printed an editorial review which, in view of present conditions in Europe, was singularly timely. What awful things may be happening in Europe at the time of writing, no one can imagine, but there is every present reason to believe that conditions will be very much worse at the time when this number of the JOURNAL comes out. Because of the significance of the figures given in the Journal's editorial, we take the liberty of reprinting nearly all of it. The book referred to is by Octave Laurent, "La guerre en Bulgarie et en Turquie":

At the beginning of the Balkan war, Bulgaria had a population of about 4,300,000, and put into the field more than 500,000 soldiers. In the first war 30,000 were killed and about 53,000 wounded. In the second war 16,000 were killed and 62,000 wounded. Thus one-third of the effective force of the entire army, or 3 per cent. of the population of the country, were either killed or wounded. The deaths reached one in twelve of the whole army, one in four of the wounded and one in a hundred of the entire population. These figures serve to give some idea of what modern war means.

In spite of the thorough training of the soldiers and the years of service to which they had been subjected, the old proverb that it takes much more than his own weight of lead to kill a man in battle held true during this Balkan war. Altogether Bulgaria used during the last war 32,000,000 rifle-bullets and 27,000,000 shrapnel balls, so that scarcely more than 1 in 200 bullets found, in the expressive phrase, its human billet. The artillery was responsible for more than half of the deaths, but less than one-fifth of the wounded.

Owing to their high velocity, bullets from the modern rifle often make wounds with surprisingly few serious consequences. Laurent reports cases in which a ball traversed the brain, pierced the chest or penetrated the abdomen, with comparatively mild results. In some of these apparently dangerous cases the wounds healed promptly without any disturbing consequences or symptoms. Sometimes bones were perforated with only insignificant traces of the passage of the bullet, especially when it traversed the epiphyses. On the other hand, the fractures of the large bones were numerous and complicated and deserve special study. The mortality was distributed as follows: 55 per cent. due to wounds of the head; from 35 to 40 per cent. to wounds of the trunk, and 5 per cent. to wounds of the limbs.

Quite contrary to the usual supposition, there were extremely few serious wounds of the ab-

domen which called for laparotomy in the hospitals. There was a much larger proportion than might have been expected of aneurysms and especially of nerve-lesions of various kinds. Direct rifle-bullet wounds were often almost absolutely innocuous, and wounds of the head as a striking feature were followed with extreme rarity by serious deformities of the face. Amputations were rare, less than 1 per cent. of all cases treated in the hospitals requiring it, while trephining was relatively much more frequent. The results of a second operation under chloroform of wounded soldiers whose wounds had become infected were always very discouraging.

Summing up the results, Laurent says that during the single month of July, 1913, 150,000 men were killed and wounded on both sides, and of these more than half, at least 80,000, fell on the banks of the Bregalnitsa in the six days from June 30 to July 5. He quotes with approval the remarks of a commentator on these figures who says:

"If you put a zero behind each of these numbers you will have some idea of the effective strength of the armies and the losses that must be presumed to take place in any war which would to-morrow set the armed forces of any two first-class powers of Europe on the fighting line before each other. There would be not less than 1,500,000 dead and wounded in the course of the first month."

WAR AND ITS ROMANCE.

We are all so stunned at the happening of the impossible, the being forced to think of the unthinkable, that it is difficult even to imagine things in their proper proportions. Hell has certainly grabbed all Europe for its very own. Psychologically, it is of sad enough interest to see how quickly peaceful people, going through life in the most friendly relations, suddenly become crazed with the lust for blood; for killing; for murder by wholesale. It is also of interest, and of profound significance, that millions of men can be moved about a large area, cared for, fed, guided, herded hither and yon, and not a word of their actual location, movements or doings reach the knowledge of the outside world except such fragments as the leaders of these millions permit to escape. It would have seemed quite impossible so thoroughly and completely to bottle up all the avenues of escape for news; but it was done and is being done. The control of the masses by the few seems to be absolute; but will it always last?

THE EXPOSITION AND THE WAR.

The Directors of the Panama-Pacific Exposition have announced most positively that the Exposition will open on the date scheduled and that there is not the slightest question of postponing it on account of the European war. They state that nearly all the exhibits which had been promised will be in place on time and that the success of the Exposition is in no way a matter of doubt. It is quite probable that, if the war continues, a great many people will come out to see the Exposition and travel through the western part of their own country, who might otherwise have gone to Europe.

ORIGINAL ARTICLES

THE INTIMATE RELATION OF ORTHOPEDIC SURGERY TO NEUROLOGY.

By H. W. WRIGHT, M. D., Santa Barbara.

The stimulus to the production of this paper comes from a recent experience with several interesting and instructive cases which came under the author's observation in one of the busiest orthopedic dispensaries. Neurology and orthopedic surgery have always had much in common, but as time goes on and neurological diagnosis becomes more exact the communal interest of the two branches of medicine becomes more important. In the dispensary where the writer had the privilege of working hardly a week passes without a patient who needs a thorough neurological examination dropping in, and judging from the number of cases referred from a nearby neurological hospital, orthopedic conditions are as frequently met with there. Such an experience cannot fail to convince one of the necessity of the orthopedist having a thorough knowledge of organic and functional neurology and a habit of making a careful and complete neurological examination in every obscure case.

It will not do to take the attitude that any patient showing signs of organic lesion of the nervous system belongs to the neurological specialist, and therefore ceases to be interesting. Many such patients need orthopedic treatment, and the particular treatment depends very much upon the neurological examination and must be interpreted by the orthopedist himself in order to treat the patient effectively. Thus might time and suffering be spared to many patients who are now shifted from one specialist to another, because neither has sufficient interest in, or knowledge of, the other's branch of work to make a complete examination. The patient does, indeed, need specialistic treatment; but, first of all, a correct diagnosis is essential and a correct diagnosis is most surely obtained by the man whose field of vision is not limited to one organ or region of the human anatomy. We have in our large cities unlimited clinical material and it is only the lack of co-operation between the different clinics, hospitals and medical societies that prevents the modern specialist from being a well rounded man so far as diagnosis is concerned.

Perhaps there is no disease in which more confusion of neurological with orthopedic symptoms and indications for treatment can exist than hysteria. This fact has nowhere been so graphically illustrated as in the monograph by Dr. Newton Shaffer, entitled "Hysterical Joint Affections," and published in 1880. Numerous cases are therein detailed and show that the author had a good grasp upon neurology, as well as upon his own specialty.

Hysteria may simulate any disease, and here

even the expert may be fooled. Hysterical joint symptoms and contractures if treated orthopedically are quite apt to be aggravated, to become permanent or indefinitely prolonged because the treatment has increased the attention of the patient to the part involved and has done nothing to correct the neuropsychic functional defect which is the cause of the symptoms.

Such diseases as syringo-myelia, disseminated sclerosis, Freidrich's ataxia, chronic exudative inflammations of the spinal cord membranes and progressive muscular atrophy come to orthopedic dispensaries because of the motor disability accompanying these lesions. If a thorough neurological examination is not made intelligent treatment is impossible, and intelligent consultation with the proper specialist unlikely. Spinal cord tumor is not an infrequent disease at all ages and can often be mistaken for incipient Potts, neuritis, sciatica or "spastic paralysis" by the unpracticed eye.

In the course of a year a large number of little sufferers from Erb's type of birth palsy pass through an orthopedic hospital or dispensary. The majority of them do not recover either spontaneously or after many months of electricity and massage, yet nothing more is done for them. From a surgical standpoint they are being quite neglected by the orthopedic surgeon, and why? Because he is not sufficiently prepared either in his knowledge of the anatomy of the brachial plexus or of the technic of its surgery. These cases are numerous enough to go round between the general surgeon and the orthopedist, and generally come to the latter first anyway.

On the other hand, taking a view from the other side, many orthopedic conditions cause symptoms in the nervous system, which taken by themselves and observed by one entirely interested in neurology can simulate a serious organic disorder of the central nervous system. Sciatica is frequently diagnosed when the sciatic symptom is an indication of hip-joint or sacroiliac disease. Most distressing sequelae of peripheral neuritis, hemiplegia and paraplegia in their various forms are seen by the orthopedist because the neurologist has not been acquainted with the mechanical measures indicated to prevent deformity in any affection involving muscles and joints.

There are also many obscure functional disorders in the "neurasthenic" group, which depend largely upon static defects, especially the condition described and well elucidated by Hibbs in his article on "muscle-bound foot."

To illustrate the theme of this paper, the following cases are submitted. For this privilege I am indebted to Dr. R. H. Hibbs of the New York Orthopedic Hospital and Dispensary:

Case I. A girl of 12 years was brought to the dispensary because of a gradually increasing weakness of the muscles of both lower and upper extremities. This began shortly after being frightened and exposed to cold and wetting during a fire in her home. Examination showed pronounced atrophy in arms, with almost complete paralysis in all the limbs. There was increase of the right knee jerk, double ankle clonus and Babinski reflex.

No sensory disturbance nor any sign referable to the cranial nerves. An organic lesion of the cord was diagnosed and the patient referred to a neurological hospital. There she was operated upon and an extra-dural tumor removed at the level of the eighth cervical and first dorsal segments. Patient has gradually improved and two months after operation was able to walk. Permanent paralysis of the upper extremities was doubtless prevented in this case by early operation.

Case 2. A boy of 4½ years had had pain in back of neck for five months. Was treated for rheumatism. Physician referred the case to a dispensary because he suspected cervical Pott's disease with paraplegia, the gait having gradually become feebler and fever having been observed.

Examination showed very unstable station and gait, absent knee jerks, sluggishly reacting pupils, nystagmus; Babinski on right side and marked ataxia in hands.

After being referred to a neurologist an examination of the eye grounds revealed papilloedema on each side. A diagnosis of cerebellar tumor was made and the lateral ventricles were aspirated through the corpus callosum, eight ounces of fluid removed. The patient improved for a time, but soon relapsed and remains unimproved.

Case 3. A girl of 13 years complained of headache for two years. Was treated for eye strain by special glasses. Headache improved, but eyesight became more defective. She came to the orthopedic dispensary because of feebleness and uncertainty in gait. Examination showed increased knee jerks and hemianopsia. After being referred to a neurological hospital optic atrophy was found and a diagnosis of tumor at the base of brain was made. This was not considered removable and therefore the lateral ventricles were punctured through the corpus callosum. The vision rapidly improved thereafter and the patient's gait likewise became better. She was discharged much improved, but three months later vision became again more dim and this condition is progressing.

Case 4. Spinal cord tumor, simulating spondylitis. A girl of 14 years after an attack of measles two years previously gradually became stoop-shouldered and rigid in the dorsal spine. She also occasionally had noticed a numbness in left foot and fingers with tendency to involuntary contracture of the fingers of left hand. Later pain down the inner side of left arm appeared. Examination of spine showed a smoothly rounded kyphos, involving the upper half of dorsal spine, with rigidity in same region; also a slight lateral curve in the same region.

All tendon reflexes were exaggerated; there was double Babinski and ankle clonus. There was also weakness of the muscles of left foot and hand and slight atrophy of the left calf muscle and the thenar muscles of left hand, together with diminished sensation to touch, pain and temperature in left arm and hand and in left leg and foot; pain down left arm was frequently complained of, but was not constant. No symptoms referable to the cranial nerves; abdominal reflexes absent. There was a fine tremor in left hand on extension. The patient became rather rapidly more feeble in her limbs and a diagnosis of intra-medullary cord tumor was made by the neurological consultant. After being transferred to the neurological hospital the patient developed mastoiditis and was operated upon for this. Soon her cord symptoms began to improve and a spinal brace was applied. With this she was soon able to walk about comfortably. Four months later she was found to have exaggerated reflexes and double Babinski and ankle clonus, but less disturbance of sensation than formerly; however, there was still a diminution to pain, temperature and touch in left lower extremity. Her feet were spastic, but there

was no noticeable atrophy anywhere. She had no pain and was up and about every day, walking with a cane and wearing a spinal brace. This patient was now considered as a case of chronic osteoarthritis of the spine and her spinal cord symptoms were thought to be due to pressure of bony growth on the nerve roots and cords. X-ray showed only a slight thickening of bone lateral to the bodies of vertebrae. She tires easily, and after being about a few days will take to bed again for a time to recuperate and later walk about better. On August 5th and 12th she was prescribed thymus gland grains X, and this treatment was continued for two months, but patient gradually became more incapacitated and she was again referred to the neurological hospital, where this time a diagnosis of cord tumor was made. Primary operation of laminectomy and incision of dura was done and patient improved. She is now awaiting the extrusion of a probable intra-spinal tumor.

Case 5. A case of hysteria resembling focal disease of the spinal cord. A girl of 18 years. No history of nervous or mental disorder in antecedents. Her brother is of neurotic type, a stammerer and poorly developed. The girl was always considered "nervous" and self-conscious, is subject to dreams and fainting spells, but has given no other psychic evidence of hysterical makeup. Shortly after an operation for appendicitis she was thrown from the steps of a trolley car, striking her right knee, and although there was no serious injury she remained in bed a few days. Since then her right knee had been painful and she kept it flexed, walking upon her toes, and her general nervousness had increased. On admission there was a spastic contracture of the flexors of the right knee joint and of the calf muscle, which could be overcome by persistent manipulation. This caused some, but not unbearable, pain. No pain complained of when at rest. No atrophy.

The right knee reflex was overactive; there was pseudo ankle clonus; no Babinski. Lateral nystagmus was present in each eye. There was a very coarse type of intention tremor in the right hand; none in the left. This tremor varied in degree and was much less when patient was unconscious of observations. There was anesthesia in right foot and leg; later on, in left. This anesthesia shifted about from time to time, but was found constant in one area of right foot; its distribution did not correspond exactly with any segment of the cord. In applying "Hoover's test," i.e., having the patient flat on her back and asking her to raise the normal leg with knee extended, the contractions in the other knee disappeared. Blood and urine were normal. The patient retained her urine for long periods and secreted very little, catheterization produced only four ounces after 48 hours. After discontinuing catheterizing she voided naturally. Mentally she was cheerful; she often laughed immoderately. She remained under observation six weeks without much change in the above symptoms. The left tendon Achilles was lengthened, but this caused no change in patient's knee contracture or gait. At times, however, her gait was normal, but never when she was conscious of observation. Toward the end of her residence in the hospital she was allowed to go out alone for short walks. She fell once or twice, but sustained no injury. She was also given thyroid and thymus gland for three weeks in full dosage without any benefit. Finally the nature of the patient's disorder was frankly explained to her in simple language, which she seemed to comprehend and also to be quite relieved by the explanation. She was urged to leave the hospital and keep away from dispensaries and doctors. She had been to several before admission here. She was advised to try to lead a normal active life in spite of the present symptoms and was assured that these would gradually disappear.

THE TREATMENT OF GASTRIC AND DUODENAL ULCER.*

By RENE BINE, M. D., and EMILE SCHMOLL, M. D.,
San Francisco.

Ever since pathologists began to insist upon the universal prevalence of tuberculosis, clinicians have tried to perfect their methods of diagnosis of this disease in order to recognize it in its incipiency. This has necessarily resulted in an increase of clinically diagnosed cases, many of which are labeled "old," "healed," or "latent"; others "active," "progressive," etc. Similar conditions apply to the disease now under discussion. It is less than 100 years since pathologists began to clearly differentiate between ulcers and cancers of the gastro-duodenal region, and ever since then anatomists have shown that active ulcers or cicatrices are found in 3% to 5% of all autopsies. With the advances of modern surgery and an increasing number of laparotomies, ulcers have been demonstrated and found to explain the symptoms in many otherwise obscure cases. This has stimulated physicians to more accurate observation and study of gastro-intestinal patients so that we now find ulcers diagnosed much more often than they were even 10 years ago.

A perusal of textbook descriptions gives one the impression that the diagnosis of gastric or duodenal ulcer is a fairly simple matter, depending upon the presence of pain, vomiting, hematemesis, hyperacidity, occult blood in the stools, etc. It is true that with these symptoms one is often justified in assuming the existence of an ulcer. But much more often we see patients in whom only pain and hyperacidity, with or without vomiting or pylorospasm, lead us to question the correctness of such a diagnosis. We even frequently see or hear of patients in whom all the classical symptoms of active ulcer are present, but where at operation no such lesion is found; and in addition, where the removal of a chronically diseased appendix or of a diseased gall bladder is followed by a complete cure. It must be remembered that because at operation ulcers are not always found, their absence is not proven. They vary considerably in size and surgeons frequently experience difficulty in locating ulcers even if a half-inch in diameter if they are not indurated and are without adhesions. In some instances pin-hole ulcerations have been found at autopsy accounting for fatal hemorrhages for which no cause could be found on the operating table. Cases are also recorded where though the diagnosis seemed certain and where deaths resulted from hemorrhage, macroscopically and microscopically no ulcer could be found at autopsy.

It is because of this great difficulty in the diagnosis of gastric and duodenal ulcer that clinicians find it hard to correctly estimate the value of any treatment. A goodly number of cases undoubtedly recover without any form of treatment, if we are to rely at all upon the frequency with which healed ulcers are shown as

* Read before the San Francisco County Medical Society, April 1914.

autopsy findings; on the other hand, it is not improbable that a number of clinical cases reported cured by mild measures were really sufferers from other diseases.

How then are we to decide for ourselves? In the series here presented, we have included only those cases in which we feel certain of our diagnoses, these having been substantiated at operation or autopsy, or more or less confirmed by prolonged observation.

The next question that we must ask ourselves is: How much can we expect from any method of treatment, and what shall we call a cure? We cannot consider any method successful unless it brings about an absolute freedom from all subjective symptoms as well as the disappearance of all objective signs of ulcer activity. This result is frequently obtained by different methods, medical and surgical. But while we have all seen apparent cures, only too often after a period of months or years, recurrences are apt to drive us to ask in desperation—are ulcers ever permanently cured?

Of late the tendency has been to consider gastric and duodenal ulcers, not as primary conditions but as results of other acute or chronic disturbances, such as chlorosis, vagotonia, chronic appendicitis, chronic constipation, gall stones, and even status asthenicus. These troubles, it is assumed, cause spastic contractions of the gastric musculature, contraction and obstruction of the local blood vessels with ischemia and digestion of the mucosa and ulcer formation. It is, however, difficult or impossible in most instances to decide whether lesions found in the gall bladder or appendix are the cause of the ulcers, or whether the latter, the result of a congenital or acquired disposition to irritative gastric disturbances, have given rise to them.

We feel that in many of our cases we may speak of cures even though years later ulcer symptoms have reappeared. It is most probable that the ulcers really heal, but that new ones occur because of the primary disposition itself, with or without some new extra-gastric factor.

The following cases are cited as examples:

Case 1. Mr. S., age 55. In 1906 typical symptoms, hunger pain, periodicity, hematemesis, tarry stools, hyperacidity. On an exclusive milk diet got entirely well in about two months and remained well until Christmas, 1913, when the same symptoms recurred. Under Lenhardt treatment complete recovery ensued and the patient has been apparently entirely well for the last two months.

Case 2. Mr. P., age 55. Had occasional attacks of what he called "biliary spells," during which large amounts of clear fluid were vomited, indicating pylorospasm, combined with symptoms of hyperacidity. These attacks would last but a few days and would occur at irregular intervals. Except for obstinate constipation, had been particularly free from symptoms for a number of years until February 1st, 1914. On this date, while traveling on a train, began to vomit and had three attacks of hematemesis, losing one to one and one-half pints of blood with each. Came under our observation several days later and was kept three weeks on Lenhardt diet. The pain increasing and the blood picture becoming constantly worse, operation was decided upon and gastroenterostomy

performed. Patient died of acute dilatation of the stomach. Autopsy showed completely cicatrized ulcer of duodenum just below pylorus.

Case 3, details of which will be given below, recovered from typical ulcer and remained well for eight years, when all symptoms recurred.

Case 4. Mrs. P., age 34, always delicate. At 14, began to have vomiting spells which yielded to a liquid diet. Married at 18. At 24, vomiting, gastric distress, periodicity to pain. July, 1911, to May, 1912, in a hospital in Cleveland, being treated for hemorrhages from stomach, where diagnosis of possible cancer was made. Recovery complete. First seen by us April, 1913, because of recurrence of vomiting spells. Dietetic treatment instituted, but patient did not persist, having yielded to Christian Science influences. September, 1913, fell and sprained ankle; this kept her at home for some time, during which period was subjected to considerable worry. October, 1913, sudden recurrence of nausea, with vomiting of at least a pint of blood. Modified Lenhardt regime. Complete recovery in about 6 weeks. Patient is well to date.

Case 5. Mr. R., age 31. In 1908, pain, periodicity, hematemesis and blood in stools. Modified Lenhardt treatment, 3 weeks in bed; recovery. In June, 1912, began to have pulmonary hemorrhages. We found him with an advanced tuberculosi. He rapidly developed signs of intestinal obstruction and general peritonitis, dying in spite of operation. Autopsy revealed perforated tuberculous ulcers of bowel, acute tuberculous lungs and a large scar of old healed duodenal ulcer.

SURGICAL INDICATIONS.

The treatment of gastric and duodenal ulcers varies with each case. With a few exceptions, the treatment is a purely medical one. We feel that while the surgical treatment has been advocated with great enthusiasm in recent years, the results that we have seen have fallen short of our expectations, and we are becoming more and more inclined to conservative measures. Surgery, to our minds, is absolutely indicated:

1. When there is stenosis due to cicatrical constriction of the pylorus or duodenum,
2. When symptoms of tetany are present,
3. In acute perforation,
4. When persistent bleedings occurs,
5. Perigastric abscess.

As relative indications for operative interference we consider:

1. The failure of medical treatment after 3 to 6 months thorough trial.
2. The social status of the patient, which may preclude prolonged medical treatment and observation.
3. The suspicion of cancer, though clinically this does not very often occur, and with the use of the X-ray and modern laboratory methods should become more infrequent. (As a matter of fact, the surgeon finds it frequently impossible at operation to exclude malignant degeneration in ulcer lesions.)
4. Interference with gastric motility, or severe pain due to perigastric adhesions.

We do not agree with those writers who look upon a diagnosis of an hour-glass stomach as indicating surgery, for in our experience this condition seldom gives symptoms of stenosis or produces

stasis, and many cases are clinically proven non-organic.

In cases of gastric tetany, operation should be performed as soon as the diagnosis is made, unless the stenosis causing it be due to spasm.

Medical treatment is usually of no avail; surgery frequently relieves it immediately or in a short while. Rodman has again drawn attention to this interesting condition, recently reporting a case where tetany supervened 11 days after a perfectly satisfactory drainage operation had been done.

Case 6. This patient was seen in the service of Professor Krehl of the University of Heidelberg, May 6, 1907. Male, age 26. For 17 yrs. off and on, attacks of pain, vomiting and sour regurgitation, alternating with periods when gastric function was apparently normal. Attacks having become more frequent, patient had been washing stomach daily for 18 months. Loss of weight had been noted for some time, patient having lost 7 lbs. during the week previous to admission to the hospital. Middle of April, patient stated, everything got black before eyes, he was stiff all over, fists clenched themselves, heard all that was said about him, but could not do anything himself.

Examination: Heart and kidneys O. K., moderate emphysema, stomach dilated and ptotic, peristalsis visible: 3500 cc. of fluid removed with tube. On fasting stomach: total acid 23, free HCl 8, butyric acid present, no lactic. After evening meal: total acid 78, free HCl 27. The diagnosis of benign stenosis was made, the absence of blood in vomitus or stool being against active ulcer; but it was thought probable that the first symptoms experienced had been caused by one. The acid figures were against cancerous changes. Gastro-enterostomy was to have taken place on May 7th. On the evening of May 6th, an attack of tetany occurred, in which patient fell on his head and death ensued.

When first seen the classical symptoms of tetany were all present. Under Lenhardt treatment the attacks of tetany ceased, all signs but the Chovstek disappearing, and the gastric stasis was almost entirely relieved. An occasional occurrence of blood in the stools, with a persistent hyperacidity, show, however, that the ulceration is not cured and operation has therefore been advised and will soon be carried out. We may state that operation was not insisted on at the outset because of the absence of an anatomical obstruction and because the first attack had yielded to medical treatment.

MEDICAL TREATMENT.

The medical treatment of this condition must needs vary with every patient. Many dietary cures have been advocated, their underlying principle being to obtain, as nearly as possible, absolute rest for the stomach. Many authors advocate and others tolerate ambulatory methods in the treatment of mild cases. It has been our custom to absolutely refuse to treat cases of this sort unless they are prepared to follow a period of enforced rest. We keep our patients in bed for at least two weeks after the disappearance of pain, hyperacidity and bleeding. In so far as the dietary regime is concerned, we are ardent advocates of the Lenhardt plan of feeding, with some modifications. In formulating his method, Lenhardt was actuated by the belief that a too strict enforcement of a rigid and insufficient diet, with the resulting anemia, seriously impaired the recuperative powers of the patient. He furthermore felt that the ulcer was partly kept up by the hyperacidity and pylorospasm, and that the binding of acid secretion by the food would bring about a state of rest for the stomach. The Lenhardt diet is detailed in but comparatively few of

THE LENHARTZ DIET SCHEME.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Eggs (beaten up)...	2	3	4	5	6	7	8 4 beaten up 4 boiled	8	8	8 at the most														
milk (cold and taken with a teaspoon)...	200 c.c.	300 c.c.	400 c.c.	500 c.c.	600 c.c.	700 c.c.	800 c.c.	900 c.c.	1000 c.c.	1000 c.c.														
Sugar			20 g.	20 g.	30 g.	30 g.	40 g.	40 g.	50 g.	50 g.														
Scraped meat.....							35 g.	35 g.	35 g.	35 g.														
Milk and Rice.....								35 g.	35 g.	35 g.														
Zwiebach									100 g.	200 g.	200 g.	200 g.	300 g.											
Raw ham.....									20 g.	40 g.	40 g.	40 g.	60 g.											
Butter										50 g.	50 g.	50 g.	50 g.	100 g.										
Calories	280	420	637	777	955	1135	1588	1721	2138	2478	2941	2941	3007	3073										
II form 4 eggs																								

Autopsy: Healed pyloric ulcer with stenosis; dilatation. (No skull injuries.)

Case 3. A remarkable case of ulcer of the pylorus combined with tetany was seen 7 mos. ago. Female, age 39. Had her first stomach symptoms 10 years ago, that is, periodical attacks of typical hunger pain, complicated by pylorospasm and vomiting of large amounts of fluid. During one, profuse hematemesis, establishing the diagnosis of active ulceration at pylorus. With attacks of pylorospasm, typical tetany occurred, the latter symptoms disappearing as soon as the pylorus became patent. After 2 years of this trouble she recovered completely and remained well for 8 years. Six months ago she came under our observation with the identical symptom complex above described. Hyperacidity, hypersecretion, stasis, and a motor insufficiency of the first degree associated with occult blood in the stools, again established the diagnosis of ulcer at the pylorus.

the standard works on gastro-intestinal disease or on dietetics, and is therefore given here in its original form for the sake of completeness.

The treatment of course varies according to whether or not there has been recent hemorrhage. In those cases where the diagnosis is made in the absence of bleeding, we employ the following routine. We give the patient daily a mixture consisting of 1000 cc. milk, 500 cc. cream, and 8 yolks of eggs beaten up, about 60 cc. every half hour during the day, the remainder during the night whenever the patient awakens. It is taken at room temperature or slightly warmed, herein differing from Lenhardt's original scheme, for the reason that we have occasionally seen hypersecretion when the mixture was given iced. The pain

diminishes usually on the first day and is frequently absent by the third. We consider this relief of pain as one of the important diagnostic signs of ulcer, and question the diagnosis and look for complications if the response does not occur in the usual way. The diet is continued for at least four to five days, during which the patient usually loses one or two pounds in spite of its high caloric value. After this we increase the diet in a manner differing from that of Lenhardt, who gives scraped meat and ham very early in his treatment. We exclude meat entirely for two reasons: First, because its presence interferes with the occult blood reaction, upon which we always depend as an indication of the success of our method; second, because we believe that meat produces an increased secretion of gastric juice. As a matter of fact, we try to keep our patients for three to six months on a lacto-vegetarian diet, and to the strict enforcement of this rule we attribute the cures we have been fortunate enough to have.

After the fifth day we increase our diet by adding soft boiled or scrambled eggs, gruels, milk, rice, zwiebach or milk toast, butter, cottage cheese, and occasionally, as an exception to the above principle, we permit gelatin.

After two weeks, if no complication occurs, thoroughly pureed vegetables, noodles and macaroni may be given. Later on the vegetables are well cooked, but not necessarily given in puree form. After three months fish and fowl are permitted. Uncooked vegetables and fruit are not given for six months.

The feces are examined weekly during the entire period.

Absolute rest for the stomach applies to motility as well as to secretion. To obtain this result, many physicians resort to rectal feeding, employing this method as a routine and preliminary to all other forms of feeding. We know, however, from experimental work that under these conditions complete rest for the stomach is not obtained, and that under certain conditions the stomach shows peristalsis at regular intervals, this being very frequently started by the introduction of nutrient enemas. On the clinical side we have numerous proofs of this, and have seen several cases where pylorospasm and vomiting of large amounts of fluid persisted for days in spite of absolute rectal feeding.

Case 7. Mrs. H., age 37, was seen in consultation 6 years ago in an attack which had persisted 3 days and during which she had vomited about 5 pints of bloody fluid. At the time of consultation her hemoglobin was 18%, and the vomiting of blood had kept up in spite of the use of the customary measures plus rectal feeding. The principle of the Lenhardt treatment, which we advocated, was accepted, rectal feeding stopped and mouth feeding begun. Vomiting and bleeding ceased and the patient made an uneventful recovery.

Case 8. Mrs. M., age 27, was seen October 4, 1913, in consultation, because of persistent vomiting with blood and severe pain in epigastrium, symptoms which had persisted for 3 weeks in spite of rectal feeding and absolute rest in hospital. (The patient, a rather nervous woman, had suffered from

rheumatism in 1901, and, shortly afterward, from a severe fall with concussion of the brain. Appendix had been removed in 1911; following this, normal confinement, but had always been nervous. July, 1913, brachial neuritis.) A diagnosis of gastric ulcer was made, and rectal feeding continued. Vomitus showed acidities varying from 20 to 40. X-rays taken on October 14 showed slight dilatation of stomach, no ptosis, and other findings which were indicative of ulcer. All symptoms aggravated in spite of bismuth, atropin and starvation. Lenhardt diet instituted on the 18th, but vomiting persisted. On 21st, further consultation, and it was decided to have a surgeon, on the following day. That evening, at our suggestion, patient was given soft solids which were well borne; so that from that day on, a more or less soft diet was tried, according to the daily symptoms. Except for a persistent tachycardia, patient left hospital in the latter part of November in good condition. There has been no recurrence of ulcer symptoms to date, and tachycardia has disappeared.

For these reasons we have practically given up the use of rectal feeding, which furthermore can at the best supply but a very small amount of nourishment to an already debilitated organism. The lengthy discussions which we continually find published as to the best form of enema are but proofs of their failure to supply the nutrient demanded. We never have seen good results in cases where exclusive rectal alimentation was kept up for any length of time, though it is true that there are many such reported in the literature.

During and after the period of strict dieting, various other measures are employed to assist in the cure. In the absence of bleeding, hot applications to the abdomen are efficacious and frequently afford considerable relief of pain. Whether by active hyperemia, they produce a more rapid granulation of a chronic ulcer, is a point on which it is impossible to obtain conclusive evidence.

In many cases the pain is best relieved by the frequent administration of food, this being most successful when the so-called "hunger pain" is present. If the Lenhardt or some of its modifications, because of their high fat content, aggravate the pain, an exclusive milk diet may be tried. Atropin or belladonna, the former hypodermatically, or the latter by suppository, may be used to prevent excessive HCl secretion or to relax the pylorus, our preference being for atropin hypos., grs. 1/150 to 1/100 t. i. d. or oftener. Of the alkalies, which not only relieve pain by neutralizing acid, but which also reduce gastric secretion, we prefer to give sodium bicarbonate combined with magnesia, the latter acting as a laxative and counteracting the gas. Milk of magnesia is often well tolerated. After a rather lengthy experience, we have practically given up the large doses of bismuth recommended by Kussmaul and Fleiner—that is, doses of 10 to 20 gms., having seen some rather distressing conditions following their administration.

Case 9. Mrs. G., age 58. First stomach symptoms 5 years ago. When patient came under our observation she had the typical chain of symptoms, hunger pain, vomiting of blood, etc. Lenhardt diet with bismuth 4 gms. t. i. d. Pain and vomiting stopped, but two weeks later patient felt a sudden sharp pain on right side of abdomen, this being associated with a marked rise in temperature, leucocytosis, and peritoneal symptoms. At the site

of the pain a tumor the size of a small apple could be located; it was easily movable and apparently in the transverse colon. The differential diagnosis lay between a cancer of the transverse colon with sudden obstruction, or a fecal impaction due to the large doses of bismuth. Notwithstanding brisk purging over a period of 6 days, the size of the tumor did not vary, although the acute symptoms disappeared. The patient was discharged some time later entirely well, except for the presence of the tumor. Two months later the patient discharged a lump of bismuth the size of a small apple, and the tumor mass had vanished.

Case 10. Miss M., age 35. In this case large doses of bismuth were employed, resulting in fecal impaction, which was only relieved by manual evacuation of the rectum.

With silver nitrate we have no experience. One of our patients has very curiously discovered that nothing gives him the relief which is afforded by 5-gr. doses of aspirin, so that he has entirely discarded his soda and bismuth for the former drug. In cases of pylorospasm, olive oil may be tried and occasionally relaxes the spastic condition of the pylorus. This is given, as suggested by P. Cohnheim, one wineglassful at a temperature of 100 degrees F. early in the morning before breakfast and a tablespoonful before luncheon and dinner; or, as he suggests, in an emulsion with the white of egg and almond oil. We have used albolene or liquid petroleum in one instance where the patient rejected the olive oil. This, of course, is not nourishing, but is soothing and acts as a laxative.

TREATMENT OF COMPLICATIONS.

(a) *Hemorrhage:* This in itself usually contraindicates immediate operative interference. In the first place, in less than 1 per cent. of cases do the hemorrhages result in death, though we have witnessed such cases in hospital practice. Furthermore, when laparotomy has been performed, the bleeding spot is seldom found, and because of the attendant shock a prolonged search can not be made. Operation has given over 60 per cent. mortality. As a rule the bleeding stops of itself. The first thing to do is to put the patient to bed, at absolute rest, flat on the back, elevating the foot of the bed so as to counteract the cerebral anemia. Adrenalin, it is claimed, in 0.3—1.0 cc. hypo. seems occasionally to act as a hemostatic. We never use it on account of its tendency to raise blood pressure, which we prefer to avoid. Pantopon (employed in preference to morphin, which produces pylorospasm) must be administered in small doses if the patient be nervous or anxious—best combined with atropin in order to diminish gastric secretion. If the loss of blood be great and the patient show signs of collapse, rectal administration of fluid may be begun. Salt solution can always be had, and the Murphy drip method should be employed if possible. Adrenalin may be added to it if desired, if the bleeding has stopped. If the bleeding continue, salt solution may be given intravenously, 5 cc. of a 10 per cent. solution for its hemostatic action, or a larger amount of the normal solution. Direct transfusion may have to be resorted to, though even this method may give but very transitory results. Furthermore, the lat-

ter cannot be considered a real emergency method, as it requires a complicated technique and elaborate preparation. In hospitals, however, its application is simpler. We have had no experience with gelatin, and though we prefer blood serum (horse), which nowadays is more available, we have tried it in one case without any result. We do not feel that much can be expected from it when we are dealing with ulcerations of a large vessel, though in persistent oozing in subjects with general tendency to bleeding, we should not hesitate to try it. Gastric lavage with ice cold water, as advocated by Fleiner, or a liter of water containing 2 gms. of calcium lactate, as recommended by Matthieu (to remove food or blood clots which by their irritant action keep up the vomiting and hemorrhage), may be tried with advantage. We have practiced gastric lavage in a number of instances with favorable results, and feel that the danger of perforation is practically *nil* if ordinary skill be employed. Kaufman is an ardent advocate of gastric lavage, and to his article on the treatment of gastric ulcer we refer those interested in a discussion of the pros and cons of this form of treatment. A light ice-bag may be applied to the epigastrium or over the bleeding area if it be known. We have used escalin (a paste made of finely powdered aluminum and glycerin) in a small number of cases, in the doses recommended by Klemperer, with apparently good results. We have not seen any bad effects from its use. Direct compression of the bleeding area by means of a tourniquet on a pelotte, or by a pelotte fastened by a towel, as advocated by Kelling, is a method that we have never employed; nor have we ever attempted, as he advises, inflating the colon with air in the hope that the transverse colon may thus press against the pylorus or duodenum (!).

In so far as the diet is concerned, we feed immediately and give 200-250 cc. of our milk-cream-egg mixture on the first day, in teaspoonful doses every 15 minutes. In these cases we give the mixture iced and gradually increase the amounts until we have gotten back to the scheme above discussed.

(b) *Perforation:* If acute, the treatment is purely surgical, and as such need not be discussed here. If the perforation be chronic, expectant measures may suffice, as the following case will illustrate:

Case 11. Mrs. G., age 35. Patient has been under treatment for a fairly long period of time, for what was diagnosed by her physician as gall-stone attacks. She was suddenly taken, one evening, with sharp pain in the abdomen, pain radiating to back, fever, leucocytosis and signs of peritonitis. Seen in consultation. Diagnosis of perforation agreed upon, but as the peritoneal symptoms were subsiding at this time, medical treatment was instituted. X-rays 10 days later showed a snail-formed lesser curvature with the whole stomach drawn over to the left side. Under Lenhardt treatment patient improved, and except for some colonic symptoms, recovery has been complete. X-ray one year later showed stomach normal in form and position.

RESULTS.

Of the 72 cases which we include in our series, 42 were treated by the medical measures described, with 32 cures; seven have been very much helped; three have been decidedly improved.

Thirty cases have been operated upon. Of these, three, operated upon for recurrent hemorrhages, all relapsed; in two cases where gastro-enterostomy was performed, death occurred from acute dilatation of the stomach; one gastro-enterostomy died of embolism, another of pneumonia. One case operated upon for chronic perforation died of acute sepsis; and another, operated upon for acute perforation, died of shock following operation. One case, where resection was performed, died of shock after operation. Another of our patients, where resection was performed by the Mayos, relapsed after six months.

We have therefore had a total of seven deaths after operation and four relapses. A large number of our operated cases are far from well, as evidenced by complaints of pain, sour stomach or occasional feelings of gastric distress.

SURGERY OF PEPTIC ULCER.*

By L. ELOESSER, M. D., San Francisco.
(From the Division of Surgery, Medical Department
Stanford University.)

What we have learned of the physiology and pathology of digestion in the last ten or fifteen years has overturned most of our old notions without giving us a stable foundation in their place. The next few years should clarify the subject. Facts and data enough are at hand; it remains to sift and study them.

In the first place we have learned to diagnose ulcer better; it is especially the Röntgen ray that has helped us here. We have learned to distinguish between the different kinds of ulcer, especially as to anatomical location, and we have learned that different kinds of ulcer and differently located ones demand different treatment. Our views, however, as to what kind of treatment is best adapted to each particular form are anything but settled. On the whole I think that our diagnostic insight has outstripped our therapeutic ability.

As to the various kinds of ulcer: The acute ones, the so-called toxic ulcers, if uncomplicated, are not subjects for surgical intervention. They seem to do well enough under medical care, rest and diet. Of course the treatment is lengthy, but it is a mistake to think that surgery can shorten it. The condition predisposing to ulcer remains the same after operation as before—to perform a gastro-enterostomy and to dismiss the patient from medical care after his wound is healed, to say to him, "Go home, you're cured," is to invite almost certain distress and recurrence.

Surgical intervention does not shorten the time of treatment in these cases at all, it only does so when the conditions underlying the process of ulceration have already been overcome,—when we

are dealing not so much with ulceration as with its effects,—then, in the case of a stricture or a scar, we *may* relieve the patient by an operation so that he is dismissed cured as soon as his wound is healed. In acute or toxic ulcer, indeed in the great majority of all cases of ulcer, he needs as careful and as continuous supervision after his operation as before.

Simple acute ulcer should be left to the medical man to treat, with one exception *perhaps*,—and that is duodenal ulcer. Duodenal ulcer presents surgical problems different to those of stomach ulcer mainly because of the anatomical difference in the two organs. The stomach hangs free and carries a peritoneal investiture on both sides; the duodenum lies taut against the posterior belly wall. If a gastric ulcer, particularly a superficial one, heals and contracts down to a scar, it often leaves enough material in the circumference of the stomach unaffected to make up for this contraction. The duodenum is much less elastic, its walls are unyielding and its fastening to the belly wall such that when an ulcer heals and contracts it is prone to drag the adjacent tissues with it and make a stricture. It is this constricting after-effect of duodenal ulcer that might justify intervention even in acute cases.

Certain complications of acute ulcer, whether gastric or duodenal, justify, or make operation imperative. First, perforation into the free peritoneum. It is particularly the acute ulcers that are liable to this complication. The chronic ones if they perforate are more likely to be walled off and to make a localized abscess.

A very fat woman was operated at the City and County Hospital for an umbilical hernia containing large amounts of lipomatous omentum. Much of this was tied off and resected. Two weeks after operation she was suddenly seized with excruciating pain in the upper belly, collapse and vomiting. A probable acute pancreatitis was diagnosed. She died in 12 hours. Autopsy showed a perforated acute ulcer the size of a dime in the stomach wall, possibly from a retrograde thrombosis or embolism of the ligated omental vessels.

The first thing to do in a perforation is to seal the hole by means of a deep infolding suture; it is wise to reinforce this if possible by tacking a flap or a free graft of omentum or peritoneal fat over the suture line. Whether or not to add a gastro-enterostomy depends on the state of the patient and the site of the ulcer. Gastro-enterostomy is particularly indicated in perforating pyloric ulcer if the state of the patient will at all permit,—both to relieve the pressure of stomach contents driven by peristalsis against the suture-line at this point, and to forestall the future pyloric stricture which an infolding here has the tendency to produce.

Continued and copious hemorrhage is another complication demanding operation. It is often hard to know what to do in these cases. We are not to wait until the patient is exsanguine before resorting to operation. On the other hand,

* Read before the San Francisco County Medical Society, April 7, 1914.

hemorrhage from an acute ulcer, where the arteries are not sclerotic often stops spontaneously;—especially in gastric ulcer. Copious hemorrhage with melena from a duodenal ulcer usually means erosion of the duodeno-pancreatic artery and will not stop unless arrested surgically.

We should be sure of the ulcer before we operate. You will allow me to insist on this matter of diagnosis. It is remarkable how often the symptom of hematemesis means anything but ulcer of the stomach. An old classical sign degraded from its pre-eminence! It is remarkable how little it is to be depended upon as a sign of ulcer and what various things it may mean—cirrhosis of the liver, uremia, appendicitis, not to speak of confusion with hemoptysis in pulmonary tuberculosis,—even in tabic crises I have seen an abundant vomiting of blood. Only a previous knowledge of the man's habits saved me from error in this case, I am sure.

A man at the City and County Hospital suddenly began to vomit great quantities of blood. He had a history of previous attacks of dyspepsia. He was collapsed, very pale, almost exsanguine. A transfusion of blood was done and subsequent laparotomy proposed. After the transfusion the man stopped bleeding, but his pallor did not diminish nor his hemoglobin rise materially. In about three weeks he died without having been operated on. Autopsy showed shrunken kidneys, and multiple uremic petechiae of the stomach and bowels,—not a trace of an ulcer. He had shown no other signs of uremia; his urine contained a little albumen and a few casts, nothing noteworthy for a man of his age and habits.

A similar case occurred shortly after in a girl with nephritis after bichloride poisoning.

Another man, an alcoholic, had a copious vomiting of blood. His liver was somewhat enlarged. The interne diagnosed a cirrhotic hematemesis, but his symptoms and history were so characteristic of ulcer that I opened the abdomen. He had no ulcer, so I did nothing. Fortunately, he recovered. He had an alcoholic gastritis and a cirrhosis.

A man in the University of California service at the same hospital vomited large amounts of blood; a gastric ulcer was diagnosed. Gastro-enterostomy was performed. The pylorus was thickened and was thought to be the seat of ulceration. After operation the man vomited more blood than ever; the abdomen was again opened and the pylorus resected. Examination of the resected specimen showed no trace either of a fresh ulcer or of an ulcer scar. The diagnosis in this case was never made clear; the man recovered.

I might multiply cases; but this is not the surgery of peptic ulcer, and again, unfortunately, it is, too often. These things make one hesitate when brought to face a patient who is vomiting blood. Hemorrhage from the stomach is rarely so severe as to make immediate laparotomy imperative. A little time spent on diagnosis before opening the belly is rarely to the patient's disadvantage. On the whole I should say, "Don't hurry. Be sure of your diagnosis first. Then if the hemorrhage

does not cease, operate—if possible, before the patient is exsanguinate or collapsed."

A preliminary transfusion of blood will do no harm, whatever the cause of the gastric hemorrhage may be; it will give time to study the case diagnostically, and if the hemorrhage is from some other cause than an eroded artery may cause it to cease permanently.

After the abdomen is open it is often a matter of much difficulty to determine the source of bleeding. Direct inspection through an incision into the stomach is sometimes of use, more often little help. The gastric mucosa lies in folds and ridges which hide a bleeding point effectively. One can usually feel as much from the outside of the stomach as one can see through an incision. If an ulcer is found it should be occluded with a deep Draper-Mayo suture, then infolded if possible. If the ulcer is too large or too indurated this may not be feasible and we may have to excise or resect in order to stop the bleeding. This, however, is not often the case in acute ulcer, which we are considering here.

Further indication to operate may be given by intractability to medical measures, but in this case, where proper medical treatment has been tried for a proper length of time, the ulcer is no longer acute, it has become chronic.

This brings us to the actual field of the surgeon—chronic indurated ulcer. I think we are all agreed that little can be done for large chronic callous ulcers by medical means; what can be done for them surgically? That depends mainly on the location of the ulcer, and its complications. Mayo's and Moynihan's statistics are the largest. They have both followed their cases over a considerable period of years.

MAYO (GRAHAM) PEPTIC ULCER.

Number...	Cured...	Much improved...	Fair...	Cured and Improved...	Benefited...
Total duodenal	436	70%	18%	10%	88% 98%
Duodenal (obstruction)	163	71%	23%	3%	94% 97%
Duodenal (no obstruct'n)	275	68%	17%	12%	85% 97%
Total gastric	162	55%	22%	13%	80% 93%
Gastr. (obstruction)	52	67%	25%	6%	92% 98%
Gastr (no obstruction)	110	51%	23%	14%	74% 88%

MOYNIHAN.

Duodenal Ulcer—Total cases	302	
Operative deaths		5—1.65%
Died later of other causes		6—2%
Cured	250	82.8%
Improved	21	7%
Doubtful improvement		1—0.32%
No better		3—1%
Not traced	16	5.3%

These operations were all done by the same man or the same group of men. The statistics of some foreign clinics may be of interest as more closely approximating current conditions. The operations were done by operators of varying ability, chiefs and assistants, which makes these statistics more generally applicable than those of Mayo and Moynihan, who are better surgeons and operators than the most of us. Petrén, for instance, cites 328 cases from 14 different Swedish hospitals. He gives for 164 cases of gastro-enterostomy performed from 1904-8, a mortality of 5.5%; for re-

section and excision, 14%. Payr gives 465 cases of resection carried out by 31 different surgeons with 10% mortality. In general, I think that we may ascribe to resection carried out by the surgeon of good average ability a mortality of about 10%, and to gastro-enterostomy a mortality of not over 5%—of late years considerably less.

Late results of operation are as follows: Petréen gives 243 cases, 2/3 of them followed for over 3 years, 52% were cured, 73% cured or much improved, 27% still having more or less severe symptoms. Most statistics of surgeons of good average ability give about the same results for the operative treatment of peptic ulcer, about 3/4 of the patients are cured or much benefited, the remaining 1/4 still has more or less trouble.

Now we must confess that all surgical procedures for peptic ulcer are only symptomatically therapeutic. We may, by resection or excision, remove the ulcer, by gastro-enterostomy or infolding hasten its cure, but none of these measures attack its cause, whatever that may be; the real causal therapy, the after-treatment, often lies largely in the hands of the medical man who attends the patient after the surgeon dismisses him.

It is only of late that increasing experience has caused men like Mayo and Moynihan to insist more and more on a thorough exploration of the abdomen in cases of peptic ulcer. It is in extra-gastric conditions that we must seek a surgical therapy that may prove really causal. The frequency of intra-abdominal infections, of cholecystitis and chronic appendicitis, of past typhoid (Mayo found 17% of typhoid history in his series of peptic ulcer), has struck all observers.

What have these processes to do with ulcer? Are they the source of minute infectious thromboses and emboli in the portal system, which cause the primary necrosis and secondary peptic ulceration of the gastric and duodenal mucosa? It was hard to believe this in the face of all the unsuccessful attempts at the experimental production of peptic ulcer by direct infection of the stomach. Rosenow's experiments, however, where peptic ulcer followed experimental streptococcal sepsis with great regularity and where the organisms were demonstrated in the ulcer wall, have made this infective cause of ulceration seem very plausible.

Or are these infections and spasms of the appendix, the gall-bladder, the pylorus merely an expression of a general spasmophilic tendency (whatever that may mean), of a vagus reflex, as v. Bergmann, Rössle and others would have us believe?

Or is the appendicitis, colitis, cholecystitis the primary process in another reflex sense? A number of men, among them Dr. Alvarez here, have shown us that the peristalsis of the whole digestive tube is a most delicate and sensitive mechanism; that any irritation of the lower bowel may delay peristalsis of the upper; that an irritation at the ileocecal valve may cause a closure and contraction at the outlet of the stomach. Now if we have any irritative process, gastric or extragastric, causing this spasm, it will do two things: in the first

place, it will cause a local ischemia of the contracted segment—that a spasm of the musculature of the stomach causes a blanching, we can see during the course of any laparotomy by squeezing the stomach; in the second place, the spasm causes a retention and a consequent hyperchlorhydria. Now in these two elements, ischemia and hyperchlorhydria, produced by a pure reflex irritation, have we not the necessary factors for the production of peptic ulceration?

The consideration of these three theoretical possibilities in the pathogenesis of many forms of peptic ulcer, viz.: direct infectious thrombosis, spasmophilia, and reflex irritation, has, I hope, not led me too far afield; they have a direct bearing on our surgical maneuvers; they offer possibilities of a surgical therapy truly causal. If an inflamed appendix may be the primal cause of ulceration, remove it; if an infected gall-bladder, drain it; if a colitis, treat it. Then you will have done something that will tend to cure and to prevent recurrence, more than all unilateral pyloric exclusion, gastro-duodenal implantation and other new and rare procedures of whose rationale we know little more than nothing.

It has been said sarcastically that the seat of nine-tenths of gastric ulcers is in the lower right quadrant of the belly. If not the seat of gastric ulcer, perhaps then its cause!

I have left out of consideration the great class of arterio-sclerotic ulcers to which Ophüls has called attention. In those cases where the thickening of the gastric vessels is but a part of a general sclerosis, we can of course do nothing causally. There are, however, others that show a proliferation of the intima of the gastric vessels alone, without systemic arterial disease. It is difficult here to say whether this local arterial thickening is a sequel of the ulceration, a sequel of the causal spasm or infection, or whether it is really the primal factor. Ophüls has already called attention to this point. If it is not causal, if the thickening is but a part of the consequences of the primary irritative or infectious process, then by attacking the process itself we may be able to act causally in this class of locally sclerotic ulcer also.

Now besides these true peptic ulcers with accompanying or rather underlying appendicitis or cholecystitis, we have others; cases of hyperchlorhydria, vomiting, hematemesis, typical X-ray plates and a confident diagnosis, where we open the belly and find little or nothing; nothing but a chronically inflamed appendix perhaps, and even that dubious. We doubtfully remove the appendix in the hope that chance may help the patient to get well—and he does get well! May our diagnosis not have been so far astray here after all? May not the gastric conditions causing these pre-eminently gastric symptoms have been but the precursors of future ulceration, which our appendectomy or cholecystostomy has helped to avoid? The surgeon has errors enough charged to his score; he may now and then blunder into doing some good.

A warning may not be amiss here. To do good, and to judge these cases aright, the surgeon must

enter the field with an open mind. Nothing can stand a man in better stead in this connection than a remark of Moynihan's, who said: "Never assume a peptic ulcer that you cannot demonstrate to the onlookers." The diagnosis of *surgical* peptic ulcer is not doubtful. If an ulcer is worthy of surgical measures, it can be seen and felt and demonstrated. All "peritoneal congestions" and "adhesions" and "mucous erosions" are but subterfuges and placebos for the inward doubts of an operator who, afraid to acknowledge his mistaken diagnosis, acts on preconceived notions of what he *ought* to find, and cannot. We must approach every ulcer case with an open mind. There are two diagnoses to be made of a peptic ulcer: one before the belly is opened, and the other afterward. And if the second does not demonstrate a *real* ulcer, one that can be seen and felt, then to let the first guide our operative maneuvers is to court disaster. If there is no palpable ulcer, look further; if there is an appendicitis or a cholecystitis or a colitis, treat that, and let the stomach alone. The patient will often get well; surprisingly often. If you find nothing, do not be afraid to do nothing. It is far better to close the abdomen than to do a gastro-enterostomy for a preconceived notion of what ought to be an ulcer, and is not. Of all ulcers those least benefited by gastro-enterostomy or resection, or by any gastric operation, are those that are not there. It is the gastro-enterostomies for "mucous ulcers," "superficial ulcers," for ulcers that are not ulcers, which give trouble, have vicious circle afterwards, have the largest operative mortality and the greatest post-operative distress. I do not deny that there may be ulcers that cannot be detected from the outside of the stomach, neither by touch nor sight; but if there are, they do not warrant surgical interference with the stomach, and should have remained in the medical man's hands in the first place. If the surgeon finds them he should return them to the internist without the additional complication of a gastro-enterostomy or a resected stomach.

Enough. It all leads to this: In operations for peptic ulcer or for conditions showing characteristic signs of peptic ulcer, the belly should be thoroughly reviewed for other irritative or infectious lesions in all cases, and the stomach should not be interfered with unless in the presence of a clearly demonstrable lesion.

There remains to be considered the strictly local therapy of chronic callous ulcer. The question of resection or excision vs. gastro-enterostomy does not yet seem to be definitely settled. The crux of this question is not the difference in the relief of symptoms nor freedom from recurrence afforded by these two respective procedures; for as far as I have been able to gather from statistics, there seems to be very little difference, but the danger of malignancy, present or future. Now, where there is the least doubt of an ulcer being malignant, either in the light of clinical evidence or operative findings, I think that all are agreed that it is far wiser to remove it. The question hinges upon our ability to settle this doubt. We have no clinical tests that allow us to determine accu-

rately whether an ulcer is benign or cancerous. Even with the belly open, there are many cases in which we are unable to decide.

Let me show you this specimen: Here you see two separate processes, one at the lesser curvature, one at the pylorus. A resection was done because the thickened callous mass at the lesser curvature, with almost pathognomonic miliary nodules in the serosa above it, seemed most suspicious of cancer. The sharp, punched-out pyloric ulcer with thickened edges seemed a typical peptic one. The man recovered. A number of sections of the mass at the lesser curvature showed nothing malignant; the peritoneal nodules were little fibromata. Sections of the pyloric ulcer also appeared benign. Diagnosis: Multiple peptic ulcer. The man got fat and went back to hard work. Six months later he came back with vomiting. Röntgen rays showed a closed gastro-enterostomy opening. We made further sections of the specimen, the suspicious ulcer of the lesser curvature still proved benign, but further examination of the apparently innocent pyloric ulcer showed cancer. The abdomen was reopened; it showed a general peritoneal carcinomatosis. An anterior gastro-enterostomy was done. The man died a month later of carcinomatosis. Here we have a typically suspicious ulcer, even with peritoneal nodules; it proves benign; and a typically innocent ulcer, punched-out and round, it proves malignant. We *cannot* tell; it is better to be on the safe side and resect in these cases.

I think, however, that it is going too far to urge resection for all cases of ulcer. The ultimate results of resection are very little better than those of gastro-enterostomy. Kocher does a gastro-enterostomy in all unsuspicious cases; he has as good results as any one—78.5% complete cures, 94% satisfactory results. Brenner, with a large material of *extra-pyloric* ulcers, has gone back from resection to gastro-enterostomy; he finds his results after resection no better than after the simpler procedure. The indication, therefore, in primarily unsuspicious ulcers lies in the risk of secondary malignant degeneration. We have heard a great deal on one side of this question—the tracing back of cancer to ulcer; very little on the other—the following of ulcer to cancer. These two aspects do not coincide.

It has been estimated that from 13 to 70% of gastric cancer originates in ulcer. MacCarthy gives 70% for the Mayo material, other surgeons from 13 to 43%, the pathologists 16 to 58%. Of patients treated for ulcer by gastro-enterostomy, however, only 1.8 to 6% develop cancer! How can we make these figures coincide? The reason seems to be that the resected specimens which form the basis for the estimate of the cancerous origin of cancer *were* resected because they *were* suspicious of cancer; and the suspicions frequently proved well founded, as in the case cited above. That would make these figures high. On the other hand, in patients with unsuspicious lesions, a gastro-enterostomy was done and the ulcer not removed. There again the innocence of the lesions was corroborated by the subsequent course. Few of these patients develop cancer. It is all a mat-

ter of diagnosis. If you have the least doubt, either from clinical, laboratory or operative findings, resect if possible; if there is really no doubt, gastro-enterostomy offers as good prospects of cure as a resection.

How does gastro-enterostomy aid towards cure? How does it work? By diverting the food-stream from the pylorus, keeping the stomach empty and setting it at rest. So we were told. But it doesn't! It seems to do none of these things. The Röntgen ray has only just begun to make us realize how little we know about it. In the first place, the gastro-enterostomy does not divert the food-stream from the pylorus, still less does it keep the stomach empty.

Cannon and others working with animals showed that the gastro-enterostomy apparently does not work at all, that all the food goes through the pylorus and none through the gastro-enterostomy. That is true for cats and dogs, but not for man; in most cases food leaves both by the pylorus and by the gastro-enterostomy. It does not drain through the gastro-enterostomy. Even when we make it large and at the "deepest point," as we were told, the food does not run out of the stomach as out of a hole in the bottom of a bucket; it passes out rhythmically and peristaltically. The gastro-enterostomy does not keep the stomach empty. Radiographs show the emptying to be somewhat accelerated in most cases, from one-half to two to four hours; the stomach, however, is not kept empty by any means, nor is it kept at rest. Emptying through the gastro-enterostomy usually takes place with a distinct peristaltic movement.

Now if the gastro-enterostomy does none of the things it is supposed to do, what does it do? In the first place, it *does* divert the food-stream at times, viz.: when the pylorus is closed, where there is a pylorospasm, when there is an active process keeping up the pylorospasm, and just then when this diversion of the food-stream is most needed. Secondly, it does keep the stomach partly empty, keep it from being over-dilated by retained secretion and food in the presence of pylorospasm, a retention otherwise only relieved by vomiting. And thirdly, it provides a reflux of bile and of alkaline duodenal juice into the stomach. The importance of this reflux, which seems to occur in the majority of cases, I do not know. It seems to play a preponderant part in the reduction of acidity usually found after gastro-enterostomy, and this reduction again seems to be more marked in those cases examined soon after operation than in those examined later. Stomachs examined early after gastro-enterostomy contained more bile than those examined later, whose ulcers had healed. Kocher goes so far as to find a compensatory and regulatory mechanism in this reflux, the quantity of regurgitated bile being proportional to the acidity and not the reverse, as one might suppose.

We have it in our power to make a gastro-enterostomy divert the food-stream from the pylorus, should this really prove requisite to a cure. We can close the pylorus; to keep it closed, however, is not easy. The usual methods of infolding

and puckering, of longitudinal pyloroplasty, etc., have been shown by the X-ray to be ineffectual. The method of Bogoljuboff-Wilms, who occlude the pylorus with a fascial graft, and that of Lamotte, who ties it off with twine, are better, although even they are not secure. The one way to keep the pylorus shut is to cut it through and sew it up, the unilateral occlusion of v. Eiselsberg. This operation carries with it a definite risk of some per cent. Whether the results of pyloric occlusion in peptic ulcer are better than those of simple gastro-enterostomy without occlusion, is hard to say. Statistics seem to show that they are, a little; and that some simple method of exclusion, ligature with twine or fascia or infolding, should be practised in addition to gastro-enterostomy for duodenal ulcer. Moynihan's results have improved from 79 to 88% of cures since infolding these ulcers. We cannot say, however, that this improvement is due to actual pyloric closure. The infolding or puckering of the ulcer itself is probably the more important part of the procedure, whose effect on the pylorus is more imaginary than real.

There remains to discuss the value of the various operative procedures for differently situated ulcers. Those of the antrum, pylorus and adjacent duodenum may be considered together. It is these which are most benefited by gastro-enterostomy, with or without pyloric closure. Especially the stricturing ulcer scars; they give the conditions where relief after gastro-enterostomy is almost certain.

Ulcers of the body of the stomach and of the lesser curvature without obstruction are notoriously less amenable to treatment, whether surgical or medical. Of these not more than 50 to 60% are cured by surgical treatment, and not more than 70 to 80% much improved. Of course this is something. Internal medication is not very effective as regards permanency of cure in these ulcers either. I think you will even concede that it cannot permanently improve some 70 to 80% of these patients. As long as we thought that the efficiency of gastro-enterostomy depended solely on drainage of the stomach and that food passes through the gastro-enterostomy solely in the presence of pyloric obstruction, it was difficult to see the indication for gastro-enterostomy in non-obstructing ulcers of this class. Still gastro-enterostomy was done and a number of these ulcers were permanently cured or benefited. The newer studies of gastro-enterostomy have not served to shed much light on this question, but they have served to make us less positive about our indications. The results of resection seem to be little if any better than those of gastro-enterostomy. It is certain that neither resection nor excision offer security from recurrence. Brenner, mentioned above, returned to gastro-enterostomy after trying resection in a series of 67 cases of extra-pyloric ulcer. Kocher does a simple gastro-enterostomy and speaks of satisfactory results. Körte the same. However, Mayo, Moynihan and others advise resection for this class of ulcer. One fact seems established: that the results of resection or ex-

cision alone, without gastro-enterostomy, are considerably inferior to those of either the combined gastro-enterostomy and resection, or the gastro-enterostomy alone. This would make one inclined to see in the gastro-enterostomy the more important component of the operation, and to see in the resection an added risk without adequate promise of cure. Excision should certainly be combined with gastro-enterostomy. Excision alone carries with it a real danger of subsequent hour-glass contraction; the defect in the stomach always appears surprisingly large, and even when sewn up transversely is prone to contract. So in a case of Dr. H. P. Hill's. A woman had an ulcer excised. A year afterwards she began vomiting again. Re-operation showed an hour-glass stomach. Gastro-enterostomy and a gastro-gastrostomy were done. The woman has remained well since, a period of over four years.

I do not think that variation of our present gastric operative procedure has much to offer towards bettering our results in ulcer of the body of the stomach. It is to a more careful abdominal exploration that we should look, more attention to extragastric processes, and above all, to more solicitous post-operative care. It is just in these cases, where our results are sorry enough, that we must look to the medical man for aid; the operation may help towards a cure, it certainly does not accomplish it. We know that these cases are likely to recur; how can we expect permanent benefit if we discharge these patients as cured directly they leave the hospital, let them go home free of all dietary restriction and medical attention, turn them out to diets of pork and beans and enchiladas! If we will take enough interest in them to watch them, to send them back to their medical advisers, and to instill into their minds the necessity of at least six months' cautious living—if we will speak to them of these things before operating on them, and not undertake operation unless they are willing to comply, I have hopes that our surgery may prove less futile.

To conclude:

1. Acute ulcer is not to be treated surgically unless: (a) perforated; (b) bleeding obstinately, or (c) intractable by medical means.

2. Hematemesis should not be made an indication for operation unless the presence of a bleeding ulcer can be made reasonably sure. A preliminary transfusion of blood will often give time for diagnostic examination and benefit the patient meanwhile.

3. Chronic callous ulcers suspicious of malignancy should be treated by resection and gastro-enterostomy.

4. Chronic ulcers of evident innocence should be treated by gastro-enterostomy with or without pyloric closure. The results of resection are not sufficiently better than those of gastro-enterostomy to compensate for the added risk.

5. Gastric procedures should not be carried out unless indicated by clearly demonstrable gastric lesions.

6. At all operations for peptic ulcer, the ab-

domen should be carefully examined for extra-gastric irritative or infectious processes. The treatment of these may be more important causally than the treatment of the ulcer itself.

7. Our gastric operations are not causally but symptomatically therapeutic. Prolonged post-operative medical care is imperative.

In preparing this paper I have put others to a great deal of trouble in the endeavor to gather statistics that might be of local interest. I am sorry to say that the trouble was in vain. I could not gather records sufficiently explicit to make their tabulation profitable. I have to thank Drs. Stillman, Rixford, Cheney, Hill, Cooper, Schmoll, Barbat, Boardman and others for their kind help.

Discussion.

Dr. W. F. Cheney: I have nothing to add to what has been said to-night, but some of the points I would like to emphasize. First, it seems to me, and I think it has been brought out here to-night, that we have absolutely no method of certain diagnosis of either gastric or duodenal ulcer. Our methods are what we call inferential. With regard to a history of hyperchlorhydria, evidences of pyloric obstruction, blood in the feces, and the X-ray findings showing six-hour stasis, none of these makes us certain that ulcer exists. We obtain, by each one of these methods, facts that lead us to infer that an ulcer exists, and the more of these facts we get together, the more certain our inference becomes; but all of you must certainly have had the experience of being proven wrong at the operating table, even when inference seemed most secure.

As regards treatment, the choice between medical and surgical treatment must depend upon chronicity. All are able to cure, apparently, the acute ulcers, but the longer a man practices—the more years of experience he has—the more skeptical he becomes about medical cure of chronic gastric ulcer. He can treat the patient and relieve him for a time. But the cases I cured five or seven years ago have since been coming back with symptoms; and that is not a cure. I think the only honest position to take is to say to the patient: "I can relieve you of your symptoms, can promise you an interval of anywhere from one to five years' relief, but cannot promise you a cure."

After what we have seen at the operating table, it is unreasonable to suppose that we can, by medical means, cure chronic gastric ulcer. Contrary to what has been said by Dr. Bine, my own experience with surgical treatment has been very satisfactory, and I never hesitate to advise a gastro-enterostomy or an excision of the ulcer, when indicated. The results certainly have been more permanent than they have by any method of medical treatment, and the immediate results are likewise good. I have, fortunately, not seen any patient die from the operation, though statistics show that in a hundred cases, two or three are going to die. I think, again, that good or bad results from the operative cases depend very largely upon the surgeon who is selected to perform the operation, and I may say this because, not doing any operations, I am exempt from suspicion as to my motive. The one who is selected to do the work is the one who usually decides whether the result is going to be good or bad. A correct diagnosis and a skillful surgeon thus become the two elements in the cure of chronic gastric ulcer.

P. K. Brown: Dr. Eloesser called attention to one thing, and Dr. Schmoll and Dr. Bine to another that I want to speak about. First, the statement that after any operative procedure the patient wants to be advised that he has six months

ahead of him during which he must treat his stomach with particular care. He has got to know that he has a new mechanical problem and must constantly help it out. We try to teach such operated cases in the Southern Pacific Hospital that, unless they are prepared to do with their mouths the work that they ordinarily leave for their stomachs, they cannot expect much relief. You all know that among railroad employees hasty eating leads to all sorts of gastric disorders, and among brakemen, conductors, etc., gastric and duodenal ulcer are common. They are all put on the Lenhardt diet and advised of the danger of relapse unless they learn to eat slowly, masticating thoroughly. Operation is advised at once in event of relapse. I have seen as many as three operations done in one day for this condition, the total number including a good many pylorectomies, and in all my eight years in that hospital I have never known of but one death.

The second point is the reference to the Lenhardt diet. Our experience teaches us that this treatment has been the largest contribution to the medical care of ulcer that has been made thus far. We have practically no trouble in relieving all symptoms, modifying it slightly to suit each case. We depart from Lenhardt's plan of feeding meat on the fourth or fifth day and do not give it until daily examination of the stools shows that the bleeding has ceased. We have seen no reason, on account of the increased acidity, to stop the meat as suggested by Dr. Schmoll.

I could add a good many personal experiences of interest. One of them concerns lavage for hemorrhage. I recall one instance where as much as one quart of decomposed blood was washed out of the stomach of a patient who was slowly dying of hemorrhage. It was quite evident after having emptied the stomach of these clots, the bleeding was still going on. We put in 8 ounces of adrenalin solution, 2 ounces of 1:1000 and 6 ounces of water, having failed to stop his hemorrhage with ice water. There was some absorption, but the solution was washed out in a few minutes, and the hemorrhage had ceased, and the patient got well. It was a desperate measure, but it seemed justified.

The use of orthoform to distinguish between pains of ulcer and other suggestive pains in that location is interesting. We have tried it and are satisfied that orthoform, given shortly after a small amount of some fluid—preferably orange juice, which is very apt to cause pain—will generally relieve the pain immediately. Twenty grains is the amount usually given, the test being made on an empty stomach in the morning.

We have had operations done on cases of chronic appendicitis, having diagnosed ulcer a number of times, only to close the abdominal wound, not feeling that we ought to do a gastro-enterostomy, and proceeding to remove the appendix.

One typical case of appendix disease simulating ulcer, Dr. Levison reported at one of these meetings. It was a German girl who had been under the care of both Boas and Ewald. Each made the diagnosis of gastric ulcer in which we concurred. While on the Lenhardt diet for ulcer, she had a typical attack of appendicitis. When she was opened and the appendix removed, the presence of old adhesions indicated she had had appendicitis before, and doubtless all her symptoms, constant bloody vomiting and pain immediately after eating, were due entirely to the appendix trouble.

I don't think anyone has heard these papers without appreciating that they represent a tremendous amount of accumulated truth and the value of personal experience. Dr. Eloesser's paper especially was certainly a classic, and I shall have occasion to refer to it a good many times.

Dr. Alfred Newman: Apropos of the treatment of hemorrhage, I can mention a case I treated which may be of some interest. Twenty-four

hours after a gastro-enterostomy for an ulcer of the lesser curvature, the patient began to vomit blood. It seemed as though he had vomited a bucket of blood by the time I got there, and he was in extremis. It was a question of doing something and doing it quickly. My old standby has always been Monsel's solution. I washed out his stomach with ice water and Monsel's solution. I used two ounces in 500 cc.—two ounces in a pint. It stopped his bleeding. After I got the blood out of his stomach, I put two ounces of 50 per cent. solution into the stomach, and in order to give the heart something to go on, I gave him a liter of Dr. Hogan's gelatin solution intravenously. The patient got over his hemorrhage.

Dr. W. C. Alvarez: We must always keep in mind that the X-ray examination seldom gives us more than a functional diagnosis. Except in the few cases where we get a "Füllungsdefekt," or a perforating ulcer with bismuth outside the stomach, we do not see the lesion—we see disturbances of function from which we surmise the presence and character of the lesion.

The main question we must ask ourselves about a stomach case is, can he be treated medically with any prospect of success, or is there an organic lesion present which must sooner or later be operated upon? When we are in doubt, to which side should we lean? As Dr. Bine and Dr. Schmoll say, finances enter the problem very largely. If a man who barely exists on a small salary, be put to bed for two or three weeks—and any ulcer cure without rest in bed is a half-hearted procedure—and if at the end of that time he is no better, or if the ulcer is to break out again in a few months, you have injured him—he has wasted time and money that might have been spent on the operation.

A great deal depends on the age not only of the patient but of the illness. If a man with duodenal ulcer has had attack after attack for many years, the chances are that he has so many adhesions to gall-bladder and colon that the healing of the ulcer alone will not give sufficient relief. To be sure, surgery also must often fail to give perfect comfort afterwards. The patient cannot expect that, but he does want life to be worth living and he wants to be able to keep at work. In one of my cases recently, the surgeon found a duodenal ulcer which had become adherent to the gall-bladder, while the omentum was attached to operative scars on the pelvic organs. This condition explained the pain which she had suffered on standing, for then everything hung from the under surface of her liver. The history had been largely that of gall-stones. She is grateful for the great change in her health, although with an abnormal opening out of her stomach and some remaining adhesions she cannot hope to have the abdomen she had before.

Jordan has called attention to the fact that the usual spasmotic, hour-glass contraction relaxes and disappears at operation because of the anesthetic. In several such cases, a gastro-enterostomy opening has been placed within the zone of contraction, and the patient has died afterwards with the so-called "Duodenal death." This was due probably to the obstruction of the stoma and of the lumen of the jejunum when the spasm returned.

A good history is essential in stomach work, but unfortunately we often cannot obtain it until after operation. Before operation the patient is on his guard; he will not tell you anything which will prejudice you in favor of the knife. If you want to get a good history, take it again when he is convalescing. With great difficulty recently did I make a man admit that he had had stomach trouble at the age of twenty-two, but even this clinched my diagnosis of duodenal ulcer at forty-five. After operation he admitted that he had been close to death with appendicitis several times.

With all modern methods I defy anyone to

make a diagnosis at times between ulcer and cholecystitis. I believe that in these cases we should say as do the Mayos very frequently: "You have a surgical condition in the upper right quadrant of your abdomen, and you will have to be satisfied with that diagnosis." I have seen recently four cases, one right after the other, in which adhesions were found between duodenum and colon or duodenum and gall-bladder without any signs of previous ulceration.

Dr. G. E. Ebright: I shall confine myself to one point: the treatment of hemorrhage. In cases of hemorrhage the mortality in cases left alone is in the neighborhood of two per cent. It requires rare judgment and rare courage, in considering a patient who has severe bleeding from stomach ulcer, to realize that if let alone his chances are better than when interference takes place. As the blood is lost, the blood pressure is lowered to such a point that clotting may take place, and the bleeding gradually stops. For that reason we avoid using cardiac stimulants in shock just as much as possible. The use of adrenalin and drugs of that nature is much best left alone if possible. If styptics can be applied locally to the bleeding point, it is a different thing, but agencies to raise the blood pressure and stimulate the patient out of shock, should be used with extreme caution.

Dr. L. Eloesser, closing discussion: We have been fortunate with our results at the City and County Hospital, more fortunate than Dr. Schmoll would indicate. We have had about a dozen cases, treated by gastro-enterostomy, resection and excision, and have been lucky enough to have had them all recover. I think it has been due in great measure to Dr. Hill's help. We have tried to work with the physician, rather than against him, and have consulted and respected his opinion as to indications for operation.

If we cannot cure causes of ulceration, medical men cannot cure them either. Perhaps we can, however, do more to cure the causes of ulceration than medical men by treating, when we open the belly, concomitant conditions, by removing the appendix or the gall-bladder.

I must strongly protest against Dr. Bine's dictum that the hour-glass stomach is not a subject for surgical intervention. I should like to ask what he means by an hour-glass stomach. Dr. Alvarez says that the hour-glass stomach disappears at operation—that it disappears under an anesthetic. Now, a true hour-glass stomach does not disappear under the anesthetic at all. Those cases that disappear are not hour-glass stomachs; they are spastic stomachs, X-ray stomachs, if you like. You can diagnose them. If the X-ray shows an apparent hour-glass, give the man a physiological dose of atropin and X-ray him again. If the spasm is gone, he has no hour-glass stomach. If you operate for hour-glass stomach and he really has one, it will not disappear under ether. You will see a scar and a constriction so firm, inelastic and tight at times that you cannot get a finger into the opening.

As to bleeding, I think, too, that bleeding in acute ulcer is not a case for surgical intervention. In aged individuals, however, when the arteries are hardened, it does not stop unless you close the vessel surgically. In acute ulcers, bleeding stops because the vessel is not sclerotic and can close by itself. These cases are for medical treatment.

I have not gone into the various surgical procedures, because I thought that their discussion was more for a surgical than a medical meeting. I think the Finney operation is valuable in many cases of pylorospasm; it does away with the dangers of vicious circle. The use of the Finney in duodenal ulcer, I think is not as good as gastro-enterostomy—we get too close to the ulcer itself, for one thing, and we do not get the reflux of alkaline intestinal contents into the stomach for another.

THE DOSE OF SALVARSAN.

By DOUGLASS W. MONTGOMERY, M. D., San Francisco.

Because of the occasional occurrence of encephalitis hemorrhagica and other accidents, the dose of salvarsan is undergoing decided modifications. The dose recommended for general use when the drug was first introduced was 0.60 grm. for males and 0.40 grm. for females, equivalent in neosalvarsan to 0.90 grm. for males and 0.60 grm. for females. When these doses are carefully given, in almost every instance they are borne without any disagreeable symptoms whatever. There may be some vomiting, there may be some diarrhea, there may be some diuresis, but the patients usually arise from the couch, on which they have received their infusion, and experience no ill effects. Deaths do, however, result from the administration of salvarsan, and they are particularly distressful. When such an accident occurs quickly following the infusion of a drug into the blood, the physician cannot escape the feeling of responsibility, nor can he elude the censure of those that surround him. Both remorse and blame are especially sharp in those instances in which the medical man has strongly urged the acceptance of the treatment. As the whole dose is administered intravenously and at one time, it is therefore irretrievable, and when once given it goes on its way for good or for evil without any essential modification of its action being possible.

Barring accidents from faulty technique or from disability on the part of the patient, such as a persistent status thymo-lymphaticus, advanced disease of the liver or kidneys or illy compensated valvular disease with cardiac myodegeneration, the accidents from salvarsan are very few indeed. Deaths, however, have occurred when the dose was moderate, when there was every reason to suppose the drug was unchanged, and when the technique was faultless, and when the patient seemed in every respect suited to receive the treatment. It would seem that in these rare cases the patients are abnormally susceptible to the drug. This hypersensitiveness to salvarsan may involve the skin, the gastro-intestinal tract, the kidneys, the liver or the brain and its meninges. This last class of cases in which the brain and its meninges are hypersensitive to salvarsan, constitutes by far the most interesting group.

Meirowsky and Kretzmer have tabulated the deaths from salvarsan, and these tabulations are most impressive in their bearing on the dosage, and on the question of encephalitis hemorrhagica.¹ In all there are only one hundred and nine deaths. As far over a million doses had been given when these tabulations were made, and as a multitude of causes, besides the nature of the drug itself, entered into the result, the small number of fatalities is remarkable. And this small number cannot be ascribed to inadvertence in reporting cases, as no drug has been watched half so jealously as salvarsan.

In eighty-five cases the stage of syphilis at which the death occurred is noted. It appears that in twelve of them the dose was given and the death

occurred when the patients were in the primary stage of syphilis; in thirty-five when they were in the secondary stage, and in seven when they were in the tertiary stage. In eight of these fatalities the patients had latent syphilis, and in twenty-three, the patients had syphilis of the central nervous system, such as tabes, paralysis or cerebral lues.

These figures are surprising indeed as they show such a large percentage of the deaths, thirty-five out of eighty-five cases, or 41.2%, in secondary syphilis. This heavy death rate in secondary syphilis is brought out still more saliently if only the cases of encephalitis hemorrhagica are considered.

CASES OF ENCEPHALITIS HEMORRHAGICA CLASSIFIED ACCORDING TO THE STAGE OF THE DISEASE IN WHICH THE ACCIDENT OCCURRED.

Meirowsky and Kretzmer have collected thirty-four of these cases. In six of them death occurred in the primary stage of syphilis, seventeen in the secondary stage, and two in the tertiary stage. In five of the cases the patients had latent syphilis, and in four the patients were suffering from some form of syphilis of the central nervous system, such as tabes, paralysis or cerebral lues.

In this last enumeration, seventeen, constituting 50 per cent. of the deaths occurred in patients suffering from secondary syphilis. Clearly those in the secondary stage of syphilis show a greater susceptibility to a disastrous result, and to a disastrous result involving the cerebrum, than those in any other stage of syphilis.

The susceptibility of those in the secondary stage of syphilis to this particular kind of accident stands out still more prominently when one reflects that the acquisition of syphilis is most frequent at the height of sexual development and therefore in individuals in the prime of life and health, and that the secondary period follows close on the primary stage, or stage of acquisition, and therefore with individuals equally robust. The accident, therefore, is not due to constitutional weakness in the individual, as those, for instance, suffering from syphilis of the central nervous system must be constitutionally much weaker. Nor is it true that the total number of treatments during the secondary stage equals or exceeds the treatments in all the other stages combined; on the contrary the treatments during the other stages must by far exceed those in the secondary stage.

Tomaszewski believes that the accidents attributable exclusively to salvarsan are due to idiosensitivity; in one case affecting the skin and giving rise to a Herxheimer reaction, in another affecting the kidneys, in another reacting on the gastro-intestinal tract, in another affecting the liver and in still others producing a meningeal and cerebral symptom-complex. It is thought that the presence of any septicemia, whether spirochetal or other, may peculiarly sensitize the brain and meninges, and so account for the comparatively large number of instances of encephalitis hemorrhagica occurring during the secondary stage of

syphilis, in which a spirochetemia undoubtedly exists.

THE NUMBER OF DOSES AND THEIR SIZE, AND, IF MORE THAN ONE DOSE IS ADMINISTERED, THE PROXIMITY OF THE DOSES, AS CONTRIBUTING TO A FATAL RESULT.

Cases in which death occurred after one dose:

In thirty-six cases there were three fatalities after one dose of 0.30 grm. or less; six fatalities after one dose of 0.31-0.40 grm.; eleven fatalities after one dose of 0.41-0.50 grm. and sixteen fatalities after one dose of 0.51 grm. and over.

Cases in which death occurred after two or more doses of salvarsan:

There are forty-five fatalities in this category. Only the size of the last dose is here considered. In the forty-five cases, one death occurred after a final dose of 0.20 grm. There were six fatalities after a final dose of 0.21 to 0.30 grm.; ten fatalities with a dose of 0.31 to 0.40 grm.; ten fatalities with a dose of 0.41-0.50 grm.; and eighteen fatalities with a dose of 0.51 grm. and more.

Another very interesting table takes under consideration the size of the dose and the fatalities from encephalitis hemorrhagica. There are in all forty-one of these cases, and there was one fatality at a dose running from 0.20-0.29 grm.; five fatalities at a dose running from 0.30-0.39 grm.; eight fatalities at a dose running from 0.40-0.49 grm.; and twenty-seven fatalities at a dose of 0.50 grm. and over. It will be seen that the fatalities increased with the dose, and that twenty-seven or 65.8% of them occurred when the dose was 0.50 grm. or more. However, it will also be noted that although the larger the dose the more apt encephalitis hemorrhagica is to occur, yet it may supervene even on the administration of a very moderate dose, 0.30 grm. or less. Furthermore, its supervention cannot be ascribed to any fault in technic or to any change in the drug, but is a poisonous manifestation of salvarsan itself.

RELATIONSHIP OF THE DEATHS TO THE REPETITION OF THE DOSE.

It would appear that when the dose is repeated within a week the danger from salvarsan is much increased. In thirty-six cases when a second dose was given and death followed, twenty, or more than half of them, occurred when the second dose was given within a week from the first, and seven occurred when the dose was repeated within two weeks.

Meirowsky and Kretzmer conclude from all the facts they have been able to gather that the size of the dose and the intervals between doses are the two decisive considerations, and they propose to make it a principle never under any circumstances to give more than from 0.30 grm. to 0.40 grm. of salvarsan to a dose, and never to repeat the dose before the lapse of eight to fourteen days. Taking the number of injections of salvarsan at a million and the number of deaths at a dose of 0.30 grm. of salvarsan at ten this would give a chance of one in one hundred thousand that a death would happen. But in subjecting these ten cases to a

critical analysis they find that a number of the deaths could have been avoided. One of the patients of this group had aortitis luetica with myodegeneratio cordis, and died of pneumonic embolus. Another of the patients had tonsillar swelling, high fever and icterus after a first injection of 0.40 grm., which were direct contraindications against giving the second dose, after which he died. Another of these patients was very fat, and suffered from mitral insufficiency. Coma set in thirty minutes after the injection that ended in death. At the autopsy both cardiac ventricles were markedly dilated, and there was oedema of the brain. Another patient at the time of injection was suffering from severe nephritis, which is an absolute contraindication for this treatment. Another died five weeks after the last injection, and therefore the connection between the death and the administration of the dose was improbable. Another got three doses of 0.30 grm. within thirteen days, and they were, therefore, too quickly repeated. Six out of the ten fatalities were evidently due either to weaknesses inherent in the patient, or to the dose being repeated when a contraindication like icterus was present, or to repeating several doses too quickly. With care, therefore, in employing this dose of 0.30 grm. the deaths might have been reduced to four in a million; a very low death rate indeed.

At a recent meeting of the Berlin Medical Society, E. Lesser stated that a sufficient and requisite course of treatment consists in giving three or four intravenous injections of 0.30 to 0.40 grm. each of salvarsan.² One such injection is given every two or three weeks, and mercury is administered in the intervals. This course would, therefore, take from six to nine weeks for its completion. E. Lesser is a man of the widest experience, and of most excellent judgment, and his recommendations in this matter are to be regarded with the utmost seriousness.

At the same meeting Friedlander advised a dose as low as 0.30 grm., even when the chancre was present. For later symptoms he recommended one dose of 0.30 grm. followed by smaller doses, so that the total amount given in a course of six weeks would be 1.50 grm. Bruns advised frequently repeated small doses, and remarked that of the eighty-seven cases of encephalitis hemorrhagica reported according to Mentberger in literature, fifty-seven had received a dose of over 0.30 grm., which was in his opinion too high. Rosenthal got his best results by employing mercury and two or three intravenous injections of 0.30 to 0.40 grm. of salvarsan each, and Isaac said that when the chancre was present he got constant abortive results by giving three or four doses of 0.30 grm. each.

I personally have been accustomed to give a much larger dose of salvarsan, 0.90 grm. of neosalvarsan, equivalent to 0.60 grm. of salvarsan, but the above statistics and expressions of clinical experience have modified this, because in the vast majority of instances doses of 0.30 to 0.40 grm., when rightly managed, achieve everything that can

be accomplished by the drug, even to the definite extinction of the disease, and the larger dose can do no more than this, and exposes the patient to a risk that can be decidedly minimized by employing a smaller dose. Even in those cases of persistent Wassermann reaction, without the presence of any other symptom whatever, the best treatment seems to be repeated moderate doses of salvarsan with injections of grey oil intervening.

The above statistics of Meirowsky and Kretzmer must, however, have their most telling effect in our attitude towards patients in the early secondary stage of syphilis when the spirochetemia is at its height. Here either of two courses may be pursued. One small dose may be given to reduce the spirochetemia, followed by ordinary normal doses of 0.30 or 0.40 grm. of salvarsan combined with mercury. Instead of this a few doses of mercury may first be given as advised by E. Lesser. This would also reduce the spirochetemia, and would then permit the administration of ordinary doses of salvarsan.

In this review, for the sake of simplicity, the dosage of salvarsan has been given, and that of neosalvarsan rarely referred to. Neosalvarsan, however, in the relationship as marked on the tubes, is to be regarded as just as effective as salvarsan, is much easier of administration, and not nearly so toxic when by mischance it infiltrates into the tissues.

As regards a lower dose for women than for men, in my own experience I must say that women bear the same dose as men equally well. I think the idea of giving women a smaller dose of this drug rests on the laboratory practice of giving a dose according to the weight of the animal experimented upon. This may be a good rule as between the smaller and larger animals used in laboratories, but in such large beings as man the difference in weight between the male and the female cannot be of such importance. Of 109 cases of death from salvarsan, eighty-six were males and twenty-three were females.³ That is to say the deaths in males were three times greater than in females, but this difference rests probably on the greater number of males who have syphilis and who therefore have received treatment.

Personally, I should be inclined to consider all doses above 0.45 grm. as high and all below 0.25 as low, without, however, presuming to dictate that a higher dose than this shall not be given. The physician must be left free to use his judgment within very wide limits in the individual case. It is, however, required from him that he shall know the drug he is employing and that he shall have a clear idea of the results he wishes to obtain.

(1) Die Salvarsantherapie der Syphilis von Dr. Meirowsky und Dr. Kretzmer. Praktische Ergebnisse auf dem Gebiete der Hantund Geschlechtskrankheiten. Edited by A. Jeslonek. Dritte Jahrgang. 1914, S. 444.

(2) Berliner Medizinische Gesellschaft. Sessions of March 4 and 11, 1914. Original report by Drs. Felix Pinkus and O. Sprinz. Dermatologische Wochenschrift, May 9, 1914.

(3) Meirowsky and Kretzmer, loc. cit.

THE EARLY DIAGNOSIS OF CANCER OF THE RECTUM.*

By ALFRED J. ZOBEL, M. D., San Francisco.

Cancer of the rectum is rarely observed in its earliest developmental stage, as during that period it seldom manifests any sign of its presence. But after significant symptoms strongly suggestive of its existence make their appearance it is possible to discover it early through a careful rectal examination. Yet oftentimes the most indicative symptoms, such as supposedly would prompt even a poorly-trained observer to suspect malignancy, are passed over with seemingly careless indifference. As a consequence a neoplasm, which if diagnosed earlier might have been excised, promising prolongation of life and even permanency of cure, becomes an inoperable mass resulting in suffering and early death. Unfortunately too many await for all the classical symptoms of rectal cancer,—pain, hemorrhage, obstipation, and loss of weight,—before they are impelled to make an examination of the terminal portion of the bowel. By that time the golden opportunity for surgical interference has passed.

In no part of the body is a malignant growth more insidious in its approach than in the rectum. Evidence is given of its presence only after a firm hold has been secured on the tissues of its host. For months after commencing to thrive it betrays itself only by such slight signs as seldom urge a patient to consult his physician. But sooner or later some one symptom becomes more aggravated and then relief is sought. It is at this time that there can be no palliation for the offense of not making a thorough rectal examination. Too often is the diarrhea considered the result of some indiscretion in diet and treated accordingly; the pain and bleeding supposed to arise from hemorrhoids, and an ointment or suppository prescribed; the constipation dismissed with a laxative pill. Too often is the rectal examination neglected simply because of a desire to comply gracefully with the wishes of a pseudo-modest patient who perhaps strongly demurs against the procedure; or more likely it is on account of a reluctance on the part of the examiner himself who has an overdeveloped sense of the niceties of things, not to term it more correctly laziness. So, slight, early symptoms grow worse, others supervene, and finally by the time the diagnosis is apparent even to a tyro in medicine the patient is far on the road towards that country from whence no traveler returns.

Mayo struck the keynote truly when he said that it is lack of examination, rather than lack of knowledge, which is responsible for most mistakes in diagnosis.

It should first of all be borne in mind that cancer of the rectum is not necessarily a disease of middle and advanced life. About 10.8 per cent. of Cripp's cases occurred in patients under forty years of age, one being a child of fourteen years. According to Grule it has been observed even in children under ten years of age. An explanation given for this is the frequency with which adenoid

growths occur in children, in whom rectal cancer is generally of the gelatinous type.

Two to three per cent. of all rectal cancers occur during the third decade of life, therefore the suspicion of its presence even in those in the full flush of young man and womanhood must ever be in the mind of the careful, competent, and conscientious diagnostician.

In recent years the percentage of deaths from all cancers has become progressively larger, and cancer of the gastrointestinal tract claims the greater part of the victims. Cancer of the rectum takes a liberal share of these as evidenced from Mayo's statistics of a series of 1,264 cases of cancer of the gastro-intestinal tract which were operated on. Of these 219 were of the large intestine, while 168 were of the rectum, the latter being three-quarters as many as of the colon, and 13 per cent. of all cancers of the digestive tract. Boas states that 16 per cent. of all his cases of cancer of the digestive tract were located in the rectum. Ewald's statistics show that there are nine cases of cancer of the rectum to two in the rest of the colon.

Being mindful of its frequency and its occurrence at any age, the necessity for its exclusion in the making of a diagnosis is apparent.

Rectal pain, tenesmus or bearing down sensations; diarrheal or constipated conditions; blood, mucous or pus in the bowel movements, are symptoms which may have cancer as their source, as well as they may be manifestations of simple benign rectal lesions. It requires a digital and proctoscopic examination to establish a correct diagnosis.

As a rule it may be said that rectal pain is more often caused by a seemingly insignificant lesion, such as a fissure of the anus, or an inflamed hemorrhoid, than by a malignant growth. In the early stages of rectal cancer pain is practically absent. There may be only an indefinite sense of uneasiness which is just enough to make the patient continually cognizant of the possession of that organ; or there may be a marked pruritus ani which sends the patient to the doctor for relief. The disease may go on to complete obstruction of the bowel and still cause little or no pain when it is located in the ampulla or in the upper third of the rectum.

The mucous membrane in this situation is far less sensitive than about the anus, so that when a growth arises here, there is little pain until ulceration of its surface occurs and it is rubbed against by passing fecal masses. Even then the pain is not acute but is dull and heavy in character, and is noticed more after exercise and at night. It is only later on when the disease has progressed almost to its limit that the pain becomes more constant and severe. These are the cases which are most likely to reach the surgeon only after the condition is so well developed that it is practically inoperable.

Pain is generally manifested early when the neoplasm involves the anal margin, as this locality is especially well supplied with sensory nerves. The pain is then very acute, and often accompanied by a heavy bearing-down sensation in the rectum.

* Read before the San Francisco County Medical Society, August 11, 1914.

It may precede, accompany, or follow bowel movement, and persists for some time afterwards. Like symptoms occur with anal fissure and ulcerated internal hemorrhoids, and treatment has been instituted for these simple conditions when the graver one has been overlooked.

A continuous, chronic, dull pain in the lumbar or sacral regions, which by the patient and very often his physician is attributed simply to "a lumbago"; a sensation of weight in the perineum after standing or walking; pains, shooting down the legs, especially in the left one, which are often thought to be due to a "sciatic neuritis"; abdominal pain, which in the aged is a common symptom of malignant disease of the rectum; are oftentimes the very first symptoms of rectal cancer which, if properly investigated, should lead to an early diagnosis of the disease.

Hemorrhage is not always a constant feature of malignant rectal growths. In the early stages it comes from the congested mucous membrane overlying the site of the lesion, is small in amount and recurs at intervals. This slight recurring bleeding is what usually urges the patient to seek medical advice, and he generally comes with a self-made diagnosis of "piles" which is often accepted by his physician without further question or examination. Like pain, bleeding occurs earliest when the growth is near the anal orifice. It is seldom very copious. When so, it is more likely to come from co-existent internal hemorrhoids, although after the cancer is far progressed there may be very severe bleeding from erosion of a vessel in the bowel wall. It is more marked in the papilliferous than in the infiltrating type of carcinoma.

Hemorrhage may not occur at all, or only very late, when the growth is high up in the rectum. It becomes mixed with purulent material after the growth is ulcerated and surface disintegration has taken place.

We have observed a constant profuse bleeding from ulcerated internal hemorrhoids which caused a profound anemia somewhat resembling the cachexia of advanced carcinoma, and which from being accompanied by pain and bearing down sensations in the rectum made us very suspicious of malignancy.

The discharge of a slight amount of blood or bloody mucous from the rectum, in the absence of hemorrhoids or other benign rectal lesions, even though unaccompanied by pain or other symptoms, may be the earliest warning signal which is given out by a malignant growth. Even if on low proctoscopic examination bleeding internal hemorrhoids should be discovered, a high procto-sigmoidoscopic examination should not be neglected, for there could be yet a possibility of cancer in the bowel above.

Among those symptoms of incipient carcinoma which should stimulate investigation, but which are disregarded by layman and physician far more than pain and hemorrhage, are two most important ones, diarrhea and constipation.

While pain and hemorrhage, by causing discomfort and alarm are quite apt to compel an individual to seek advice early, diarrhea and con-

stipation, being such familiar symptoms commonly supposed to be due to faulty diet or other causes of a simple nature, rarely are considered of sufficient import to warrant consulting a physician until they become particularly severe. Obviously, by that time the disease is usually far advanced. Careful inquiry into the past history of sufferers from rectal cancer will often elicit the statement that either they have been badly constipated for some time, or that while constipation does not exist at present it did for a period within the past few months. Tuttle found this to be the fact in over 40 per cent. of his cases, and in consequence the question arose in his mind whether the irritation of arrested, hard fecal matter might not be the exciting cause of malignant invasion. Arbuthnot Lane evidently thinks likewise for he asserts that cancer of the lower rectum is the direct consequence of constipation. As the constipation is not associated with abdominal distension it is evidently not caused by mechanical obstruction.

If the growth is in the upper third of the rectum, a location where it generally infiltrates circularly about the bowel, the resulting stenosis very soon leads to an obstructive type of constipation. Relief is usually sought at once, and the surgeon then sees the disease comparatively early. In an adult, increasing constipation or extreme constipation which persists for several days or weeks at a time and which especially does not yield readily to treatment, should arouse strong suspicions of cancer, and always demands a careful recto-sigmoidal examination.

Following closely upon an attack of constipation there often arises a diarrhea which may be slight at first, then more marked later on, but always being most persistent. This unusual frequency of bowel movement may be an early sign of the presence of a growth and generally brings the afflicted one sooner to the attention of the physician than does the opposite condition, because, though the average individual deems himself capable of self-treating constipation, he feels that the treatment of a long-continued diarrhea should be left in more competent hands. It is again regrettable that too often at this favorable opportunity no rectal examination whatever is made, but the trouble is considered to be a purely local one, and treatment which naturally fails to afford relief is instituted. Therapy is depended upon to establish a diagnosis when perhaps only the insertion of an examining finger into the rectum was required to make it certain.

In every instance where there is a sudden onset of mucous colitis, with pain and tenesmus, in an elderly person who previously had normal bowel movements, a thorough digital and proctoscopic examination should be made to find or exclude malignancy. This should be insisted upon also in any person with a slight morning diarrhea associated with mucous passages, and, to be on the safe side, in every case of diarrhea which, notwithstanding intelligent treatment, lasts longer than a week. In illustration of the value of this some fifteen years ago a man, 55 years of age, heavily built and apparently healthy and rugged,

came under my observation. A severe diarrhea which he had for several months was his only complaint and symptom present. Having received no relief from private medical attendants he sought it at the clinic. It needed merely the introduction of the finger into his rectal cavity to establish a diagnosis, a procedure, by the way, which was considered an absurdity by the patient, who ridiculed the idea that a young, recently graduated medico could possibly possess more diagnostic skill than the gray-beards whom he had previously consulted. He stated that it was the first examination he had had during the long course of his illness.

After a growth begins to break down, the diarrheal movements increase in frequency and amount. It is in reality a false diarrhea, the passages being composed mainly of blood and mucous. The latter has a particularly offensive odor. Its appearance in increased quantity in the stools is generally indicative of ulceration of a growth in the ampulla of the rectum. It may be thought to be amebic colitis. Even such a skilled observer as Leonard Rogers reported a case which he suspected clinically to be amebic dysentery, and it was only the failure of treatment by emetin hydrochloride, and the absence of bacilli or amebas in the stools, which suggested a careful examination of the rectum, with a consequent detection of cancer. Several cases of amebic colitis have been seen by the writer where the first suspicion was of cancer, owing to presence of a very suggestive symptom-complex.

When the amebiasis is further complicated by multiple adenomata in the rectum and sigmoid, such as has been reported by J. L. Jelks, of Memphis, Tenn., who has observed as many as eighteen of these growths in one individual, then the condition is especially apt to be suspected at first of being malignant. However, the history, stool and proctoscopic examinations, together with the results of injections of emetine hydrochloride, aid in making a correct differential diagnosis.

The diarrhea is very often accompanied by tenesmus and frequent calls to stool. The latter may be only false impulses for defecation, and the only symptom of a latent growth. Slight tenesmus and a feeling of discomfort sometimes come on early, are due to irritation, and are many times supposed to result from hemorrhoids and treated without further examination.

It is only after the disease has progressed so far that the surface of the growth becomes irritable and cannot tolerate longer the presence of feces that there is any considerable tenesmus. There is then a constant sensation of fullness in the rectum, and a continual feeling that it needs evacuation. The frequent urgent bowel movements may number as many as ten to twenty in the twenty-four hours, and consist for the greater part of only blood-stained purulent discharge.

Loss of weight does not necessarily occur in the early stages of rectal cancer. It becomes a noticeable symptom mainly during the ulcerative period of the disease. A case in illustration was one referred to me recently for a confirmatory diagnosis. The patient was a man of 59 years, apparently in the best of health, weighing normally

200 pounds. He now weighed 190 pounds, but was unaware of any recent loss in weight. Yet, about 6 c. m. above the sphincters he had a fungating, ulcerated, bleeding carcinoma which entirely encircled the bowel. It was the incessant loss of blood which made him seek relief. During the previous year he had consulted several doctors and each one had treated him for "piles" without making any examination. Even though the condition had advanced so far that it was inoperable yet there was not only a comparatively slight loss of weight but also none of the cachexia so pathognomonic of advanced carcinoma. As a general rule it is only when the hemorrhage has been very profuse, and when there is considerable suppuration that there is marked emaciation.

Ribbon-shaped stools are now considered of little import in aiding early diagnosis since we have learned that they are due principally to proctospasm which is more likely to arise from ulcerated internal hemorrhoids or an irritable anal fissure. After the growth has developed for some time the stools become fragmentary, or if cohesive are small in diameter, covered with a milk-colored mucous and perhaps streaked with blood.

When there is a history of urgent calls to stool immediately on arising; of stool irregularity associated with indigestion; or of flatulence and passing of much wind in a previously normal individual, a rectal examination is imperatively demanded. It is only when this shall be done at the time the patient is first seen by his medical attendant that cancer will come to the surgeon early enough for successful life-saving operative procedures.

Through either reflex or mechanical causes vesical irritability may be induced by a neoplasm of the lower bowel. At times anuria resulting from direct compression of the ureters or from reflex action may be a prominent complication. Papin has reported a case in which it was the first sign of any rectal trouble.

Malignant disease in the lower rectum generally develops in connection with hemorrhoids. This is commonly so in elderly people. According to Laurent hemorrhoids may even be the etiological factor of cancer. Therefore, realizing how insidious is the oncoming of this dreaded disease, and how imperceptible is the grafting of malignancy on a benign lesion, we should always be on the alert, especially so when there is a rapid development of internal hemorrhoids in an individual who previously has been free therefrom.

A man of 66 years came into my service at the San Francisco Polyclinic, giving a history of protrusion at the anus, rectal pain, profuse hemorrhages, and frequent diarrheal stools. He was plainly emaciated and cachectic. Yet in the face of all these symptoms had received treatment for "piles" from two outside physicians who had made no attempt to confirm their snapshot diagnosis by a visual or digital examination. Again to quote Mayo, "It is failure to make a diagnosis while the disease is still local, and not any peculiar malignant tendencies in the presence itself, which accounts for the fatal character of cancer in this

region." Fifteen per cent. of the cancers of the rectum seen by the Mayos had been operated on previously for supposed hemorrhoids.

It is not only lack of examination but sometimes failure to do it properly that results in wrong diagnoses, as the following will illustrate: A fine, robust appearing Scot, 34 years of age, was referred to me for an opinion regarding the nature of a tumor found in his rectum. It seems that having had a rectal discharge of blood for some little time he consulted his physician who at the first visit simply prescribed for supposed "piles," but at the next visit as the bleeding still persisted made an instrumental examination. Not seeing anything but considerable bloody purulent material in the rectal cavity he made a diagnosis of a discharging submucous abscess. Treatment being of no avail the patient sought the advice of another physician who discovered the growth.

On digital examination, about 7 c.m. above the anal orifice there could be felt a cauliflower-like growth which encircled the entire gut with the exception of 2 or 3 c.m. of its posterior wall. It permitted the entrance of the finger through its center, but was closely adherent anteriorly and laterally to the underlying tissues. It was soft and friable, and bled readily. It had infiltrated the adjacent tissues and was quite inoperable. The reasons why his first physician failed to find the growth are evident. Firstly, he did not make a digital examination. Secondly, when he introduced his instrument it was directed posteriorly towards the only portion of the lumen which was not affected by the cancerous growth and this being obscured by the bloody, purulent discharge, was not observed.

The foregoing emphasizes the importance of and the necessity for a digital examination preliminary to the instrumental, for the sensitive finger end is best for finding a growth, infiltration, or any abnormality of the mucous membrane. As Cripps puts it, it is touch only, by indicating hardness and friability, that makes the diagnosis of rectal cancer certain.

The most common point for the occurrence of malignant growths is 6 to 10 c.m. above the anal margin. A digital examination, which ordinarily gives information concerning about 10 c.m. will therefore disclose anything abnormal. When the patient is in the squatting, standing or stooping position several centimeters more are available for such examination.

Early in its development a neoplasm feels like a thickening of the submucous tissue. This indurated area is sessile, generally of a round or elliptical shape, and readily movable upon the subjacent muscular layer of the bowel. Later it becomes firmly adherent to these tissues and is felt as an annular stricture, or as a nodular, cauliflower-like, or massive infiltrating growth projecting into the lumen of the bowel. At first the overlying mucous membrane is not affected, although it may be felt to be rather rough and quite firmly adherent to the underlying tissues. Superficial ulceration soon takes place, and gradually becomes deeper, so that to the examining finger it may feel as an irregular

shaped excavation with indurated base and margins, the latter having edges rolled and everted. The long axis of the ulceration is generally transverse. By this time the bowel at the seat of the disease is very rotten and great care must be exercised that the finger or proctoscope is not thrust through it into the peritoneal cavity.

While as a general rule the growth is felt as a hard mass, yet it may feel quite soft in the case of a rectal polyp (pedunculated adenoma), which is just commencing to become malignant in its center. The gelatinous type of neoplasm in children are also rather soft.

Chronic ulcerations of the rectum should be looked upon with suspicion as they may be carcinomatous.

Proctoscopic examination should always follow the digital, and never precede it. The electrically illuminated pneumatic procto-sigmoidoscope permits of direct local inspection of the entire rectum and several inches of the pelvic colon beyond. It therefore can give valuable information concerning those tissues above the reach of the finger. Through it specimens may be excised for microscopical examination, for although some protest against this, others just as emphatically claim that it is unwise and unsafe to make a diagnosis between malignancy and benignity without the aid of the microscope. When the disease is far advanced great care must be taken with the pneumatic proctoscope, for in the presence of old inflammatory conditions of the bowel wall, and in persons who are debilitated and have weakened and relaxed tissues there is considerable danger of rupturing the bowel if too much air is inflated.

When a growth is discovered in the rectum the first thought is usually that it is malignant. Meltzer in commenting on this remarks that there is a tendency to pathognomonicity in modern medicine, and has cited an instance where in a young, strong girl of 14 years who had a stricture of the rectum, all evidence was for malignancy. The surgeons agreed that an extensive radical operation was necessary, yet treatment for hereditary syphilis made her well without operation. This but emphasizes the necessity for a Wassermann test before arriving at a final diagnosis.

Acute inflammatory conditions producing perirectal infiltration, and having all the clinical appearances of cancer are occasionally met with. Moynihan terms this, "mimicry of malignant disease," and compares it to those tumors of the stomach which disappear after gastro-enterostomy. Robson has reported five like cases where colotomy was necessitated for supposed cancer of the rectum or sigmoid on account of obstructive symptoms. After periods ranging from one to three years he had to close up the artificial anus because of the total disappearance of the former growths. He came to the conclusion that the original condition had been due probably to a chronic infiltrating colitis associated with pouches of lodging fecal matter, or perhaps simply caused by an infection spreading through the bowel wall. Perhaps many cases of permanent cures of long standing which have been reported to follow radical operations

for rectal cancer would be found to fall in this category if the reporters were as honest, scientific, and as keenly observant as Moynihan and Robson.

Extra-rectal lesions in both male and female, by impinging upon the lumen of the bowel, may give rise to obstructive symptoms which cause one to suspect a cancerous growth in that organ. But there is rarely any discharge of blood, mucous or purulent material, and an examination of the genito-urinary system will clear up the diagnosis.

There is one fairly common condition, termed by Strauss, "sphincteric proctitis," which has been frequently observed by the writer. The mucous membrane of the anal canal is raw and congested, with excoriations or ulcerations having a tendency to bleed and to secrete mucous freely. There is annoying tenesmus, itching of the perianal skin, and boring or stabbing pains which sometimes prevent sleep and may be so severe as to cause reflex contractions in the gluteal muscles. From the severity of the symptoms and their close resemblance to those sometimes caused by cancer near the anal margin, one is often inclined to strongly suspect the presence of that dreaded disease.

A polypus or a villous papilloma may be the cause of profuse rectal hemorrhage. The last mentioned growth generally secretes a large amount of watery fluid which produces frequent evacuation of the bowels. A digital examination will discover no induration in either.

A well marked stricture of the rectum may offer considerable difficulty in deciding whether it is benign or malignant. If it is benign its free margin is generally clear cut, quite firm, and does not bleed easily. It is fairly movable unless of long standing when it may be quite firmly attached, such as was observed only very recently by me in a man of 52 years who had positive knowledge of his strictured rectum for the past fifteen years. The lumen of his bowel was so contracted that the only instrument which could enter it was a No. 24 urethroscope.

It is remarkable how often the proctologist sees patients who, having only slight pain or discomfort caused by one of the commoner benign lesions, are nevertheless greatly worried that they may have a cancer; whereas others are met with who are victims of the disease and yet are singularly free from any anxiety or fear about their condition. It has given the writer much pleasure and happiness to calm the fears of the former (some of whom were his colleagues), by assuring them that they were free from any trace of a growth, and to see their faces light up after the heavy burden of anxiety was lifted from their minds. It has made him sad and sick at heart when an examination disclosed the unsuspected presence of the disease and it was necessary to tell the truth to the afflicted one or those to whom he was endeared, for the news often came like a thunderbolt from out of a clear sky, bringing sudden sorrow and the disorganization of future plans and hopes.

In conclusion the writer believes and advocates that a digital and proctoscopic examination should be made in every individual giving a history of a discharge of blood, mucous or purulent material

from the rectum; persistent diarrhea; unusual constipation following previous regularity of bowel movement; pain, tenesmus, bearing down or other abnormal sensations in these parts; unaccounted for loss of weight; obscure digestive disturbances, especially when accompanied by stool irregularity; or of any symptom which could be caused reflexly by a cancerous growth. It is far better to make many seemingly unnecessary examinations and find an absence of malignancy than to look back with regret at a failure to have done so in just one instance in which, if the latent growth had been discovered early enough, a valued life might have been saved or prolonged.

PSYCHOTHERAPY IN UROLOGY.*

By VICTOR G. VECKI, M. D., San Francisco.

Consciously or unconsciously, psychotherapy is being employed by every physician. Even a superficial study of the history of medicine will convince any one that it has been used at all times by the physicians of all nations. The methods are old; only the names are new. For the most part the methods have been rather crude, and whoever, prompted by his personal experience, tried to give some variation of psychotherapy great importance in his own practice was sure to be called a faker, an imposter. But some of the imposters and fakers were successful with many patients. The medical profession at large, however, sitting on its dignity, clad with periwig, doctor's hat and stick, or later under the atavistic influence of these signs of an exclusive rank, refuse to take notice. It is humiliating, but nevertheless true, that among the fakers a female prophet had to arise, to compel the medical profession to start an investigation and to examine one of the most powerful weapons in the fight against disease and suffering.

The representatives of urology may deem themselves safe from the encroachments of the various aberrations of the many groups of mental healers. No amount of prayer will melt a stone in the bladder, nor will it arrest tubercular and other structural changes, and their consequences in these organs; and so on with variations. But, how about the many thousands of sufferers who haunt the various offices and whom the prosperous urologists refuse to handle and others administer to with such scant results? How about the many who have had their prostate massaged, their urethra irrigated ad nauseam, dilated, burned, lacerated and otherwise maltreated, and who remain in the same, or in a worse, condition than they were when they came to seek help? Who can remain obdurate and refuse to acknowledge that something is radically wrong?

Of course, wherever the modern methods of urology are indicated, psychotherapy will have to be relegated to the furthest background, but it can very seldom be eliminated altogether. Psychotherapy is not going to replace the irrigator, the sound, the dilator, the knife, the endoscope, the cystoscope, nor any other of our almost perfect appliances. Urology, now in the foremost rank of

* Read before the annual meeting of the American Urological Association, Philadelphia, June 20, 1914.

medical specialties, does not have to pause in its onward march to the position of the most exact branch of medical science, but it will certainly only add to its tremendous usefulness by adding systematically studied psychotherapy to its armamentarium.

The number of patients applying at the urologists' offices is growing all the time, and the number of those amongst them who cannot be cured without the help of properly employed psychotherapy is considerable.

Since 1888 I have kept on using and advocating psychotherapy. At first I thought its usefulness was limited to those suffering with sexual neurosis, but when newer methods and means of examination began to thin the ranks of the functional diseases of the genito-urinary organs, it became obvious that psychical treatment must form, in some measure at least, the introduction and beginning of every other manner of treatment in most cases of the diseases we have to deal with.

The subject of psychotherapy in urology is immense; and I shall to-day but endeavor to formulate a few rules that my experience has taught me to adopt.

It is self-evident that in every case, first of all a correct diagnosis must be made. No treatment of any kind can be entered upon before the indication is properly established.

This being so obvious it also proves irrefutably that it is a brazen and criminal impertinence that any one should have the temerity to subject a fellow human being to any kind of mental healing without having previously mastered the knowledge necessary to discriminate between the nature of a sickness in which mental healing can accomplish anything, and other diseases where different means must be used to protect the patient against suffering or even against premature death.

Cases of genito-urinary diseases, like diseases in general, must be divided into four groups:

1. Diseases of the mind itself.
2. Diseases of bodily organs over-registered by a diseased mind.
3. Diseases of bodily organs over-registered by a healthy mind.
4. Diseases of bodily organs rightly interpreted by a normal mind.

In the first group psychotherapy alone will cure if cure there be. In the second group psychotherapy will have to take the leading part in the treatment, in the third group the minor part, and may be of little, if any, importance in the fourth group.

Whoever intends to use psychotherapy must take his time to individualize and to study every single case. Jumping at conclusions most frequently leads to errors, but the psychotherapist must not get discouraged when he finds himself on the wrong track. Things are not always quite simple, and whoever is in a hurry can accomplish nothing.

Every case must be approached with sympathy. The physician who cannot love his patient, and cannot impress his patient with the feeling that he really sympathizes with him, cannot gain his confidence and will surely fail in any psychotherapeutic endeavor.

Patience is one of the most important requirements, as in many cases results can be obtained only by degrees, and whoever attempts too much at one time, or even loses his temper, loses ground at once.

Some so-called neurasthenics can be influenced by a simple talk, an explanation of symptoms and conditions, by persuasion and suggestion; others must be taken through the intricacies of re-education, psychoanalysis, or even placed into the hypnotoid, and if possible the hypnotic state.

Personally I was never able to place any one into a spectacular hypnotic or even cataleptic trance, but while not denying the possibilities in this direction, I only claim that a hypnotoid condition is all that is necessary in order to obtain the very best results. While we must always individualize, it can be stated in general that the two extremes: the highly educated, scoffing skeptic and the illiterate ignorant who never heard of psychotherapy must be placed in one class, and must never be told that psychotherapy is going to be used upon them. Such people are best treated in the evening, in a darkened room where all noises can be excluded. The patient is given high-frequency or an auto-condensation treatment. The dim light of the apparatus, the muffled and monotonous sounds of the motor are a valuable introduction to get the patient under influence; finally he is either told to close his eyes or ordered to gaze upon the high-frequency electrode through which only very weak currents are passing. Talking to the patient in a gradually lower and lower tone of voice, more and more monotonously, soon brings the subject into that hypnoidal state in which any suggestion will create lasting impressions.

People of a lively or slightly temperament who are not so easily influenced should be ordered to take a long walk or some fatiguing exercise, eat a substantial dinner, and even to take a moderate amount of alcohol before the time of treatment; I never found a narcotic to be necessary.

Tactual manipulations are very seldom indicated, and must always be avoided when a homosexual individual is under treatment.

There is no necessity of testing the degree to which a patient is under the influence. An impatient operator by giving orders which the subject is able to resist loses even the small influence he might have had. One must always be satisfied with whatever can be accomplished at any single sitting, because the next time surely more will be possible.

Many physicians make the mistake of judging their patient from their own personal standpoint. The psychotherapist, however, can accomplish nothing unless he succeeds in placing himself mentally into his subject's condition. No statement, no matter how improbable or even impossible the feelings it may describe, should be disbelieved, or, what is worse, ridiculed. The patient really feels what he says he does, and if his statements are absurd and foolish he must be the first to laugh at them, and then the physician may join him.

We know nothing about the soul, but what we are used to call by this name, the person's mental make-up, "his nature that is characterized by the

attributes of self-consciousness, conscious personal identity, reason, conscience, and the higher emotion," is his own, no matter what civil or ecclesiastic authorities and law-makers may say.

We surely agree with Münsterberg, who claims that every physician and even the village doctor needs psychotherapy much more than he needs the knife and the electric current, but I think he overestimates the value of a systematic study of psychology, as a condition sine qua non for the psychotherapist. Psychology, no doubt, should be studied by every one who wishes to become an educated man, and uneducated people should not be admitted to the study of medicine; but psychotherapy is mostly done without much theoretical psychology, and is invariably based upon proper reasoning, supported by experience and a thorough knowledge of human nature, which after all is practical psychology. Of course, anyone attempting psychotherapy must understand the laws of association of ideas in so far as they can be formulated and understood.

The psychotherapist, however, must never forget the fact that matter must last and cannot disappear, but that the products of our mind, the ideas, volitions and emotions, our joys and sorrows, must always be born anew, and are doomed to disappear. And so long as all the products of the human mind conform to this rule all is well; but when one of them gets undue preponderance over all the others, and refuses to disappear, even to weaken and yield to others, then it is time for the psychotherapist to step in.

Tedious cases are frequent, slow progress, setbacks and even relapses must be expected; but the physician who uses rational psychotherapy never need throw up his hands, or utter a sigh of relief when the patient finally stays away or changes physicians.

Psychotherapy excludes no other rational treatment, and therefore, to adapt what Münsterberg emphasizes in general, I would say: The urologist must be much more than a psychotherapist, but whatever else he may be, he must also be a psychotherapist.

As the principal aim of psychotherapy ought to be removal of symptoms, it is clear that in urology, while very valuable, and often indispensable, it can mostly be a helpmate only, very seldom the whole.

Finally, a few typical cases:

Case 1. A California politician 50 years of age, referred by Dr. McKenney of San Francisco. Several years ago a urethral stricture permitting the passing of a sound French No. 14 was found by another physician. The dilating which was advised not having been to the taste of this patient, he took to "Christian Science." After years of faithful adherence to this kind of mental healing he finally had an impermeable stricture, which compelled me to open the bladder for drainage and subsequent gradual dilatation of the urethra. It took eight weeks of hospital treatment to make the patient's life tolerable. This case is a fair example of what "Christian Science" does for a stricture.

Case 2. A barber 30 years of age presented himself with a hydrocele. History and examination demonstrated syphilis. He was treated with intramuscular injections of calomel, until all other

symptoms disappeared. The radical operation for hydrocele was postponed by the patient. Three months after, upon the occasion of an accidental meeting, the man, with a triumphant smile, declared himself to be perfectly well, having taken up "Christian Science." When I asked how the hydrocele was, he simply announced, "I pay no attention to that."

One year later he returned to my office because there was a hole in his palate, and the undue communication between the nose and mouth would not yield to prayer, nor to some homeopathic pills he finally, in a compromise with his conscience, descended to take. Eight intramuscular calomel injections healed the gumma, and convinced this patient that "Christian Science" is not the thing for syphilis.

Case 3. An undertaker 32 years old consulted me in March, 1909, complaining of all kinds of sexual disturbances. With the exception of a slight prostatorrhea, everything was found normal, the urethra permitted the easy passage of a sound French No. 29. The prostatorrhea was due to undue sexual excitement in the company of a pretty fiancée. I made the mistake frankly to advise psychic treatment. The patient, highly neurasthenic, excited and gloomy, refused with scorn; he wanted energetic treatment and instrumentation, which he really got somewhere else. Before Christmas of the same year he returned under my care. Vividly he described what was done to him; the urethra was dilated several times with a Kollmann's dilator—it did not hurt; it only bled every time, and subsequent irrigations were very painful. This time the urethra was passable for a sound French No. 20 only. It took months of local treatment, mostly under Goldschmidt's anterior urethroscope, to repair the damage done. Psychic treatment given without the patient being aware of it restored the peace of mind. He is now a husband and a father.

Case No. 4. A capitalist 28 years old, who inherited from his parents a great deal of money and a somewhat fuddled brain, was under treatment for years, going from benevolent family physician to quack, then again from one of the best known urologists to another. Every course of treatment ended in a row, some physicians turned the patient down, others were turned down by him. The shreds in the urine and some moisture in the urethra would not disappear. Some of the treatments made these symptoms a little better; most of the treatments, however, made conditions temporarily worse. Thorough examination revealed normal conditions, and no pathogenic germs. Observation and rest from all local treatments were at first suggested, the harmlessness of the discharge was repeatedly demonstrated upon rabbits' eyes, and under general treatment for a beginning obesity, and suggestions given in the auto-condensation chair the patient was restored to all the usefulness of which he is capable.

Case 5. An ignorant laborer from the south of Europe, 49 years old, began to do some promiscuous reading when he accumulated a few hundred dollars in the U. S. This was his misfortune. Reading in a foreign paper one of the alluring advertisements, and discovering that he suffered from some of the suggested symptoms, he fell into the hands of the advertising quack. The first scoundrel frightened him radically. From that time on, this otherwise very efficient laborer worked for the quacks. As soon as he had a few dollars he would undergo some treatment or another; he was dismissed as cured as soon as his money was gone, but the same symptoms, that were explained to him to be so very dangerous always returned. He dreaded to go home to his family, as he was sure to infect his wife and disgrace himself.

Examination proved that there was absolutely nothing the matter with him. The high-frequency urethral electrode introduced just below the fossa navicularis was the means used to bring the patient

under proper conditions preparatory to the hypnotic state. Suggestions of perfect health and disregarding of quasi-symptoms returned this man to uninterrupted work, and in the last two years quacks have not received any of his hard-earned money.

This case is a typical one, from a large number of observations among ignorant foreigners. The quacks, driven from the columns of our leading papers, concentrate their efforts in obscure foreign sheets, where, hidden from discovery by the proper authorities, they publish most shameless stuff, and find easy victims amongst the absolutely inexperienced, friendless and ignorant foreigners. I have observed several cases where some of these victims were made absolutely useless and helpless and have ended in the poorhouse, the insane asylum or other charitable institutions; some having been sent home by means of collections among their more fortunate countrymen.

Case 6. An instructor in one of our leading educational institutions consulted me and confessed to what he called an obsession, an irresistible desire to spank and whip well-dressed young girls. There was never any desire to do any real harm, but the case was plainly a mild form of Sadism. Some years ago he had to quit under a cloud a high-school position, and was at that time accused of brutality and abuse of authority, his case not having been properly interpreted by his accusers and he naturally preferring to hide his infirmity. Psycho-analysis brought out a suppressed emotion dating back to the patient's childhood, and suggestion in the hypnotic state freed him completely of his perverse craving. He returned to his duties without the former constant dread of the penitentiary.

Case 7. A frail and dainty little French woman, 30 years of age, was, when nursing her only child, infected by her husband with syphilis. She in turn infected the child. The whole family was treated in Paris with intramuscular injections of benzoate of mercury for a long period, and neither mother nor child presented any symptoms when examined five years after the primary infection. She complained of a strange desire to harm or even to kill her daughter, whenever she was left alone with her. Though the woman was always able to suppress this unnatural desire she was afraid that a time might come when she would not be able to resist that impulse, and might do harm to the little girl whom she loved to distraction. On the verge of committing suicide, she consulted me in 1907. Psycho-analysis explained the underlying cause. When first informed of the character of the disease with which she had innocently infected her child, the idea came suddenly that the child would be better dead, but this idea was suppressed at once. Easily and repeatedly the patient was placed in the hypnotic state, and the suggestion that her child is now well and ought to live and grow was impressed upon her mind. When last seen early this year the woman declared she could not understand how she ever could have had any such foolish desire.

PHOTOGRAPHY IN RELATION TO THE MEDICAL SCIENCES.*

By H. D'ARCY POWER, M. D., San Francisco.

It is remarkable how in an age when everybody writes, and the most trivial subjects receive more than their share of attention, it still occurs that matters of great and practical importance are without an available literature. Such is the case in respect to the technics of photography when applied to the needs of the physician and surgeon. Every medical publication throughout the

world is more or less photographically illustrated, but we all are painfully aware how commonly these pictures fail to convey the author's conception.

For many years, photography, both as an art and a science, has occupied most of my leisure time, and for the last fifteen years, I have constantly used it, as a matter of routine, in my medical practice for purposes of record and investigation. The technical knowledge I have thus gained has always been at the service of my colleagues, and the increasing frequency with which it has been called into requisition leads me to believe that a short description of important points may be welcome to those using the camera, whilst a knowledge of its many fields of value in medical practice may lead others to acquire facility in its use. To provide full instruction to the uninitiated would demand your attention over a course of lectures. I must therefore assume a general photographic knowledge on your part.

There are four specific fields of medical photography to which I invite your attention:

1. Clinical Recording and Illustration.
2. Photomicrography.
3. Radiography.
4. Kinetography.

My remarks will apply chiefly to the first and second—in which my experience is greatest.

Clinical Records.—It is of the greatest importance, both to our patients and ourselves, that the physical condition of the former be accurately recorded at the beginning of, and during, treatment. However naturally good and well trained our memories, the ever shifting picture of physical change, often extended over long periods of time, is rarely retained in our minds with accuracy, and our beliefs are more often the product of "Einbildung" than "Vorstellungsdraft."

The best of anamnesis, aided by diagrams, fails in depicting facial expression; and descriptions of skin texture, vascular turgidity, general malnutrition, etc., are only approximations, dependent on the literary skill of the recorder. Lastly be it noted that only a small proportion of men in general practice keep serviceable records of any kind. It is to the betterment of these conditions that I advocate the use of photography.

In making a photograph there are certain requirements to be fulfilled wherein, if there be failure, the resulting picture will be useless or even misleading. We must secure

1. Correct drawing
2. Correct texture
3. Correct Scale
4. Uniformity of view point.

It may be said that the lens always draws correctly. This is only true if the lens be correctly placed. If there be any lack of parallelism between the planes of the picture and that of the lens, the drawing will be proportionately false. Correct drawing in normal perspective is only obtained when the camera stands on a level base opposite the centre of the object to be photographed. This requirement must be strictly maintained when the object photographed occupies the

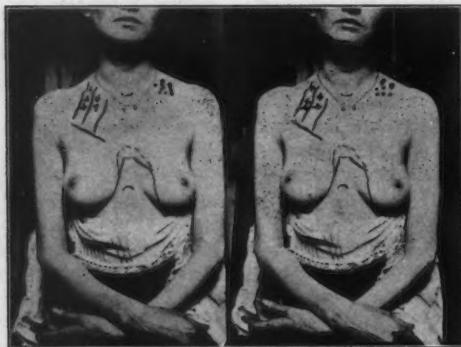
* Read at the Forty-fourth Annual Meeting of the Medical Society, State of California, Santa Barbara, April, 1914.

greater part of the visual (lens) field, but in the case of small objects, such as skin lesions, it is of minor importance. Many photographs published in books and journals err greatly in this matter.

Correct texture. The production of texture is the glory of photography. No other process can approach it in accuracy, leaving out facility, but the majority of photographic reproductions in books and journals are very defective. Success is a matter of lighting and development, and will be dealt with under those headings.

Uniformity of view point is essential if successive photographs are to be compared; this means that conditions must be standardized in place of the usual happy-go-lucky way in which photographs are taken.

I will now offer a few practical suggestions:



Pulmonary Tuberculosis.
///=Increased Conduction.
xx=Crepitus.
::=:Dulness.
Example of Clinical Record—Scale 1/10th.

Clinical Photographs.—I wish here to plead for the photograph as the routine method for keeping records. If a photograph can be taken in less than five minutes, and is capable of giving you a record of the patient's physique, of facial expression, skin texture, anatomical changes, and such internal conditions as the physician can depict by marks on the surface; and further, if such a photograph can be compared with others taken subsequently, with the power of accurately measuring interim changes, then this photograph is not only a better recorder of facts, but a great economizer of time. And this is undoubtedly the case. I have for years so kept my own records, and be the case one of lung, heart or abdominal disease, it is my habit to depict on the skin surface with brush or pencil by arbitrary signs the results of my examination. Thus, in lung disease, I indicate dullness by dots closely or widely placed, crepitus by crosses, large or small, increased sound conduction by lines. The resulting photograph is a much more useful record than the regulation printed diagram.

I will now briefly describe the essential points in the technic. These will equally apply to photographs of surgical procedures and of pathologi-

cal specimens. In all cases we must secure the following results:

1. Accurate drawing.
2. Perfect texture.
3. Correct scale throughout.

Accurate drawing is dependent on a correct relation of the camera to subject. The greater number of the photographs that I see taken by medical men show incorrect drawing from failure to correctly place object and camera. The essential requirement is that the plane of the lens and that of the object shall be parallel to one another. If the object is to be taken from above, the camera must be suspended above it; if vertical, the camera likewise. The average photograph, such as the surface of chest or abdomen, is best taken by resting the camera on a flat surface such as the table, or on a camera stand with a fixed base. The centre of the lens should be opposite the centre of the area to be photographed. If the plane recede, then the camera should be tipped to an equal angle. Probably the most difficult matter is to so place the object, or part of the body, that the same position can easily be repeated on a future occasion. For the whole body this is comparatively easy. The patient should stand against the wall, with heels and occiput in contact. This will necessitate the shoulders being thrown out.

The abdomen is preferably taken in the same posture, but for tumors, the body should be on the back and the camera supported above the patient.

The thorax can well be taken with the patient sitting in a chair. This is my own daily practice. Care is needed that the spine is held rigid, that the shoulders are at the same level and the arms parallel. The position of the head should be such that the ears are equally visible on either side, and the root of the nose on a level with the lobes of the ears. Though this may give slightly altered relations between different individuals, it secures equality of position in succeeding photographs of the same. Photographs to show pathologic conditions of the extremities are difficult and the position must be determined by the peculiarities of the case. For the hands a piece of (corrugated) pasteboard placed in front of the chest on which the hands are extended affords one of the most satisfactory and simply attained arrangements.

Finally, we must remember that with moving surfaces, such as those of the chest and abdomen, the drawing will vary with the phase of respiration. Therefore the practice of always exposing at a given stage should be adopted. My rule is to call for three deep respirations, then stop the patient midway in expiration and direct the breath to be held during the exposure.

Modeling and Texture. Lighting.—While drawing is chiefly dependent on posture, texture and surface relief are chiefly a matter of illumination. Principles, not rules, are our only guides here. Surface relief is dependent on the formation of shadows. A considerable elevation of the chest or abdomen will entirely fail to show on a photograph if the light falls on it at right angles, so

that no shadow is formed. It may, on the other hand, be greatly exaggerated by a too oblique illumination and the only rule is so to place the patient in reference to the light that the desired effect is plainly visible on the ground glass, or to the eye of the worker when viewed from a position near the lens. Sharpness of texture is not only a matter of direction of light, but also of diffusion; the nearer the source of illumination approaches a point the better will texture be represented. For this reason, I am much in favor of the use of flashlight for photographs, such as those of skin, in which texture is the main consideration. Furthermore, the use of flashlight permits of photographs of moving surfaces, such

employ a small camera— $4\frac{1}{2}$ by $3\frac{1}{2}$ inches. On the ground glass a six foot man would occupy 3 inches at a reduction of $1/20$ th. The thorax, abdomen or head can be taken at $1/5$ th, or better, $1/6$ th, and skin texture, small tumors, tongue, eyes, etc., at $1/4$ th. Place on a well lighted wall a three foot flat rule. Set up the camera in front of it and move it until the image of the rod in sharp focus occupies $1\frac{1}{2}$ inches on the ground glass. Mark on the base-board the position of the camera. Measure the distance between the camera and the rod and inscribe this beside the mark on the base-board. Now approach the rod until its image covers 3 inches in focus. Again mark base-board and measure and inscribe dis-



Stereoscopy in Skin Disease.
Scale $\frac{1}{4}$.

as the tongue. With the enclosed flash, such as that of the Victor apparatus and others, it is possible to use the apparatus without causing any smoke in the office or ward.

Scale.—In the use of photography for scientific purposes, no point is more important than the provision for accurate measurement of the parts depicted. There are two ways of obtaining this result. One is to take the whole picture at a given scale of reduction; the other is to include a measuring rod or tape in the group by reference to which the size of parts may be determined. As usually employed, both methods frequently fail in accuracy. In the first case, with a short focus lens used at a short distance from an object such as the human body, the far and near planes depart considerably from the standard of reduction, which must necessarily have been determined for a flat surface. By the second method, truth is only obtained by applying the image of the measure to the plane of the surface on which it is lying. Also, I would note that the common practice of using the regulation tape measure gives an image that is frequently illegible. The following method will give good general accuracy and provide for the correction of any secondary error. First, arrange the camera to take at four scales of reduction. These will depend on the size of camera used. I

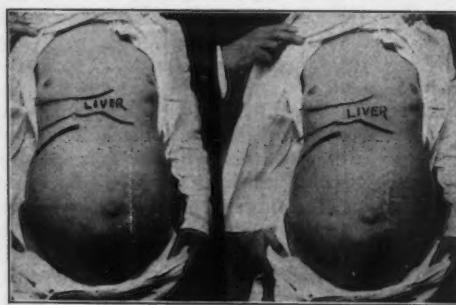
tance of rod from camera. Repeat this procedure so that 18 inches on the rod occupies 3 inches on the ground glass, and lastly that 12 inches occupies the same. When the base-board has been marked and the distances recorded, we are saved all future focusing troubles—and these are among the commoner causes of failure—and our images will in a general way be true to the chosen scale. Only in the case of the larger images, the $1/6$ th and $1/4$ th, it may happen that if the image is that of a receding plane such as the thorax, a difference of scale between the near and far planes will appear. If only one of these is required in the record, we simply measure our distance from the lens to the desired surface and that will then be in true measure. But if the record is to include both far and near planes, we must take our measure to a point $1/3$ behind the front plane and secure depth of focus by stopping down the lens. The resulting picture will look correct but will measure too much in the near plane and too little in the distant one. Usually the error is trifling, but its correction is very simply provided for. If a strip of 1 inch surgical plaster be stuck on the body in the direction of the receding plane, the variation in the width of its image will provide the means of correcting any error due to perspective. And here let me say that those who do not

care to fix their cameras for definite reductions can always insure a means of correct measurement by the use of surgical plaster. It is cut by machinery to accurate width. A piece of known width stuck on the surface to be photographed provides a sure scale. Personally, I keep in my card case a few pieces of lantern slide binding, cut to 4 inches (10 cm.) long. It is $\frac{1}{2}$ inch wide and very black. It always photographs distinctly and is most useful.

General Technics.—I wish to conclude this paper by a few remarks on camera, plates, and papers. It is an entire mistake to imagine that expensive apparatus is essential or even valuable in medical photography. The little Brownie Stereo camera, costing only a few dollars, whose lenses from the opticians' viewpoint are very defective, is responsible for nearly all the photographs, stereograms, and lantern slides I have exhibited. The fact is that in order to get the depth of focus we need, we are compelled to work with short focus lenses at small aperture, and under such conditions any kind of a lens will give sharp definition. There are just two conditions really essential. The camera should be strong and capable of enough extension to work at a scale of reduction of $\frac{1}{4}$ the actual size. Many useful cheap cameras fail in this latter respect but can be so used by the use of a supplemental lens. Such lenses are sold under the name of "portrait attachments", or can be readily ground from ordinary periscopic spectacle lenses, +1 or 2 being usually sufficient. A focusing screen is not at all essential. It is much better to work by measurement at fixed distances than to attempt to focus. If the camera does not possess a focusing screen it will be necessary to remove the back and place a piece of ground glass in its place while making the observations previously described. All plate cameras have, however, a focusing screen, and I strongly advise the use of plates in preference to films. There are several reasons for this. Plates are easier to handle, they can be obtained in various grades and with special qualities. Thus, much of the material we photograph is yellow or reddish in tint. The ordinary plate is quite insensitive to these colors, and the plate should be either an ortho or panchromatic plate, which is specially sensitized. It is also desirable to use what are known as double coated plates. I use the "Isonon" which is yellow sensitive and double coated. It is best used with a four time color screen, which cuts out the excess of blue rays. In development the object should be to obtain good detail and avoid unnatural contrasts. This is best attained by full exposure and development with a rather weak developer. I use Rodinal, which is the simplest of all preparations to employ. Prints are best made on Glossy Bromide Paper, which is not so contrasty as the gaslight varieties. There is a current superstition that prints for half-tone reproduction must be made on "Solio"—this is a thing of the past.

Stereograms.—It stands to reason that records presenting the aspect of three dimensions afford much more information than pictures in two.

There are many conditions that are very difficult or impossible to show by an ordinary photograph that are perfectly clear in a stereogram; thus, among skin lesions, macules and flat papules are cases in point; varying muscle tonus as seen in facial palsy; surface protrusions, as in aneurysms and hernias, often quite unrecognizable in a flat picture, are shown in full relief in a stereogram. These facts are slowly receiving recognition in this country and the *Stereoclinic*, edited by Dr. Howard Kelly, as well as many European works stereoscopically illustrated, are evidences of a change in method that, I believe, is destined to be universal. The chief difficulty at the present time is in the matter of apparatus. The average stereoscopic camera is provided with short focus lenses and does not take objects nearer the camera than six feet. At this distance the scale of reduction is about $1/20$ and this is altogether too small to show skin conditions or small changes of contour. If the bellows length is increased and the object approached closer, the angle of divergence between the two images becomes so acute that they fall outside the limits of the plate. Some three years ago, I showed (*vide Camera Craft*) how this can be rectified by the addition of +2 spectacle lens and No. 6 prisms. With a Brownie Stereoscopic camera so modified, I take all my ordinary clinical photographs with ease and rapidity. I can take at any desired scale of reduction from $1/20$ to $1/3$ natural size. The resulting pictures can be viewed with a stereoscope, or, with a little practice, seen in relief by the unaided eye.



Clinical Record.
Hepatic Ascites—Scale 1/10th.

Autochromes.—Very few seem to realize the great advantages of the autochrome plate. Not only is it of value in such obvious conditions as those presented by diseases of the skin, but it is the best of all means for recording those subtle and often indescribable appearances to which we apply the term "cachexia". The kidney face, the dusky blush of diabetes, the difference between the capillary turgescence of a mitral lesion and the hectic of tuberculosis, the tint of Addison's disease as compared with other pigmentations, the tints of chlorosis and pernicious anemia, even the variations due to alteration in general health are recordable and may afford the most convincing of all demonstrations of the success of treatment. An

experience of autochrome work extending over hundreds of exposures from the time of the arrival of the first box of plates on this coast, has convinced me that a strict adherence to the directions of the makers as first promulgated offers the best means of success. The *sine qua non* of success in color photography is, first, always to work under fixed conditions; second, is always make two exposures and develop the second exposure in the light of the experience gained by the first. My best results are obtained by exposure in direct sunlight—3 to 6 seconds—and pyro-ammonia development. A new color plate made by the Paget Company offers the advantage of being more rapid and better for projection.

Photomicrographs.—The making of photomicrographs may not at present be a necessary part of the medical man's duties, but as we grow in the habit of relying on pathological data we shall more and more desire personally to interpret our material and keep records thereof. I am therefore tempted to endeavor to prove to all of you that the making of photomicrographs is a simple process, and to draw the attention of those members of the Society who are engaged in teaching histology and pathology to a new method of making photomicrographic slides for hand inspection and projection, that offers advantages over the regulation slide.

The average man who has read descriptions of the technic of making a photomicrograph is usually obsessed with visions of complicated apparatus which may be obtained for \$500 or so and still more complicated procedures to be applied to the same. The light has to pass through monochromatic-special filters for given stains. Illumination must be what is called "critical" and so on. All this is very nice and for certain lines of work possibly necessary. But I have here on the table (and some I will now project on the screen) 100 specimens of photomicrographs on glass of stained tissues, all the common organs and diseases under all kinds of staining and magnification, from 10 diameters to 1000, and they have all been made by uniting the tube of an ordinary microscope to an ordinary 5 x 7 camera by means of a piece of pasteboard that is not even light tight, and with no other illumination than that of an ordinary Tungsten incandescent bulb; often without a condenser. I will now set the apparatus up and will make the negative for a photomicrograph for you in the course of a few minutes. As to quality, the specimens here shown must be the answer. All that the best illustrations show are here present and many of these plates are indistinguishable from the microscopic fields of which they are the exact duplicates. I thus demonstrate to you that all of you can make photomicrographs with ease, and with everyday apparatus. The lantern slides made from these negatives are made by a modification of the Traube process described by me in *Camera Craft*.

I shall be happy to help any one desiring to use the same.

REPORT OF A CASE OF OIDIOMYCOSIS.*

By W. W. ROBLEE, M. D., Riverside.

Patient: Full-blooded Yuma Indian, age eighteen, reported at the morning clinic at the Sherman Institute Indian School, October 1, 1913. He complained of a sensitive spot over the outer side of the head of the left tibia; some swelling was present and no fluctuation. There was no history of an injury to the knee although he had been doing a great deal of running prior to the development of his disability. In other respects the boy was in good physical condition. So far as he remembered when questioned later, he had had no cough or other disability. He had always been a hearty, rugged lad. The knee was bandaged; he was advised to use it as little as possible and ordered to report regularly for observation. The soreness seemed to gradually increase; he was given a pair of crutches and kept at the hospital. A tentative diagnosis of tuberculosis of the affected part was made and he was placed on Syrup Ferrous Iodide internally.

He developed an irregular temperature and during the first week in January fluctuation was detected in the swelling. I made a small incision under ethyl chloride local anesthesia, expecting to evacuate a cold abscess, but very much to my surprise nothing but venous blood, both liquid and clotted, was discharged. The swelling became greater; there was a constant bloody oozing from the small opening and on January 6th, under general anesthesia, I made two free incisions over

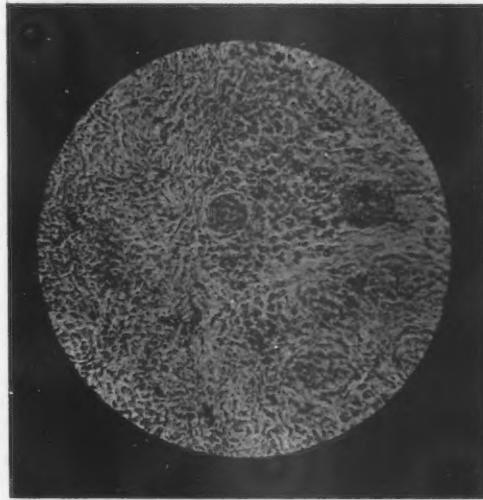


Plate I.

the head of the tibia. Large quantities of blood clots were scraped out with the gloved finger, a soft granulating mass was found subcutaneously but the bone was found not to be involved. At no point was the periosteum eroded. I packed the cavity and had no more free hemorrhage but there was, from that time on, a serosanguinous discharge from the wound. The edges of the linear incision on the outside of the leg gradually gave way until when last seen by me, there was a round ulcerated surface three by 2½ inches in diameter. About ten days later, a fluctuating mass developed in the right axilla and another over the left clavicle. These were incised; the axilla swelling contained blood clots, but the clavicular swelling contained creamy pus.

The boy was losing steadily in weight and was

* Read at the Forty-fourth Annual Meeting of the Medical Society, State of California, Santa Barbara, April, 1914.

running a low, irregular temperature, ranging from 98° to 101°, with an occasional jump to 103°. Specimens of the granulation tissue showed granulomata with giant cells and I continued to call it a tuberculous infection. Happening to be in the office of my friend, Dr. Brem, I mentioned the case to him, the hemorrhage feature of the case having puzzled me from a clinical standpoint, and he mentioned having seen a similar condition in a case of coccidioidal granuloma. Upon returning home, I at once began investigating the case from that standpoint and, with the help of Dr. Thos. R. Griffith, who made and stained numerous tissue slides for me, which were found to contain the

in various portions of the body, some eleven in all while under my observation. These were not painful; all when incised discharged a thick, creamy pus, except three; the original sore on the left knee, the one in the right axilla and one to the left of the spine opposite the last dorsal vertebra. These three were of the hemorrhagic type. The one on the back bled so freely one night that the nurse called me, considerably alarmed over the boy's condition. These three sores all developed circular ulcers. The tendency of the other abscesses was to heal; the hemorrhagic sores showed no such tendency. I placed the boy on generous doses

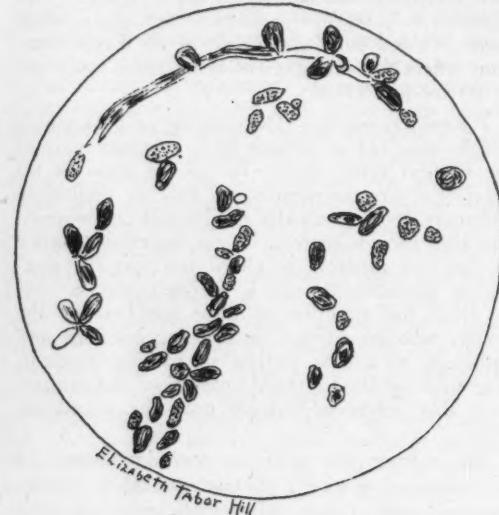
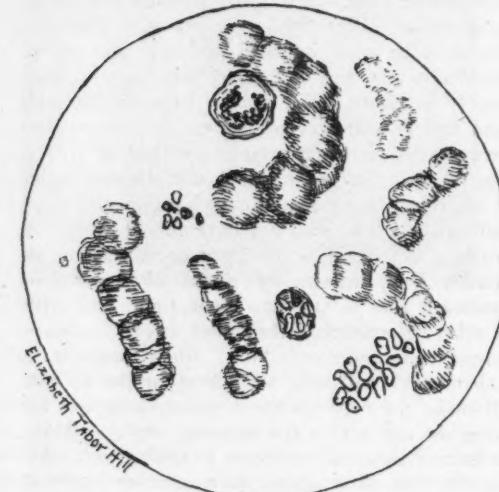


Plate II.

Plate III.
Mycelial Form of Oldia on Artificial (Solid) Culture Media.

encapsulated organisms, and having found the mycelial growth in a culture, we came to the conclusion that we had a case of oidial infection. Having read with much interest a reprint of an article on infections by saccharomycetes, by Dr. Lorena Breed, of Pomona, I called her attention to the case. She at once took a great interest in it and most of the laboratory findings submitted herewith were the result of her work.

The boy went on developing superficial abscesses

Plate IV.
Blood Culture of Patient With Oldiomycosis.Plate V.
Direct Smear of Blood From Patient With Oldiomycosis.

of K. I. and the pus from the abscesses showing a staphylococcus albus infection, a vaccine was made by Dr. Breed, which was administered to him. He continued to decline, and as it is the policy of the Indian service to send children, who are expected to die, home, if possible, he was sent to his home in Yuma, February 18th, and a report from there stated that he died one month later.

LABORATORY REPORT.

Skin sections taken from edge of wound showed:

1. Numerous double encapsulated bodies filled with spore-like granules. These vary greatly in size and are identical in appearance with those described by Rixford and later by Ophüls in the original reports on coccidioidal granuloma. Plate I.
2. Numerous giant cells and granulomatous areas identical with those found in tuberculosis.
3. A dipping in of the epithelial layers which is so well marked that it could easily be mistaken for epithelioma. In fact, slides from epithelioma placed by the side of this specimen showed an identical arrangement except that no detached epithelial pearls were observed. Plate II.

In none of the tissue sections have we seen a positive budding process as described in blastomycosis, or a breaking of the capsule with a letting free of the contained granules as described by Rixford in coccidioidal granuloma, although in one



Plate VI.

Photograph of Knee of Patient With Oldamycosis.

or two places some of the granular organisms appear to have broken through. It is difficult to be certain whether the condition observed may not be due to the handling of the tissues necessary for sectioning. Further animal experiments are being made to settle this point.

Animal Experiment.

Rabbit inoculated intra-peritoneally developed a gradual loss in weight and strength. It was killed in four weeks and the liver was found to be covered with granulomas.

Cultures—Blood serum with Agar gave a grayish,

very tenacious growth which, under the microscope, showed a mycelial development. Plate III.

Blood culture in glucose buillon was positive and gave a coarse budding growth. Plate IV.

This blood culture was controlled very carefully in so far as contaminations of media are concerned. Tests were made with normal blood, the culture media was examined and no trace of a saccharomyces was found in any specimens except those taken from this patient.

Blood Examination.

Hemoglobin	30%
Erythrocytes	3,100,000
White cells	18,000
Leukocytes	70%
Lymphocytes	30%
Coagulation time	24 minutes

This developed one of the very interesting features connected with this case. There was found all through this boy's blood, and showing clearly in the stained smear, numerous coarse granular bodies that are identical in appearance with the saccharomyces. Plate V. The boy's ear was washed with alcohol and the smear very carefully taken. The stains were tried on other blood specimens and these granular bodies were not found therein, and in so far as the exercise of extreme care would eliminate outside contamination of these specimens, it is certain that the blood on the slide is as it came from the boy.

We are prepared to say quite positively that this is a saccharomyces circulating in the boy's blood, and it is a point that should be noted in the study of future cases of this kind, as heretofore no such blood conditions have been reported. Coagulation time was 24 minutes plus. This probably accounts for the hemorrhagic tendency found in this case and is a point not heretofore brought out in the consideration of these cases. The new points observed in this case and which I believe justify its report are:

1st. No apparent atrium of infection. The boy at no time had a cough or any chest symptoms and no wound about the knee so far as he remembers.

2nd. The hemorrhagic condition found upon incising these swellings.

3rd. The tendency for the ulcers to enlarge. Plate VI.

4th. The close resemblance of the skin sections to both tuberculosis and epithelioma.

5th. The apparent finding of a saccharomyces in the circulating blood, which brings up the question of relationship as between the oidia and the yeasts. One very soon becomes lost in a maze of uncertainty when he undertakes to study out the nomenclature of these organisms. The botanists do not agree and the medical men are worse mixed than are the botanists. Any point which may throw light upon the family relationship is well worth careful elucidation.

6th. The very long coagulation time of the blood, which probably accounts for the tendency toward hemorrhages.

7th. I am convinced that infections by the yeast and related organisms are more frequent than we have heretofore believed. Doubtless, many cases are tagged "tuberculosis" and die undiagnosed, as probably would have been the case with this boy but for the chance conversation with Dr. Brem, who stated that he was mistaken for some time in the case that he had seen. Dr. Breed has given especial attention to these organisms and has found them very frequently in cases referred to her in Pomona, and she feels that they are responsible for many heretofore unexplained cases. A reading of her monograph on the subject is well worth while.

In conclusion, I want to thank both Dr. Breed and Dr. Griffith for their great assistance in working up this case.

PERFORATED DUODENAL—ULCER REPORT OF AN UNUSUAL CASE.

By B. J. O'NEILL, M. D., and G. T. COURTENAY,
M. D., San Diego, Calif.

Since the first recorded case of successful operation for perforated duodenal ulcer by Dean¹ in 1894, this surgical catastrophe has gradually emerged from a state of diagnostic obscurity until at the present time it must be regarded as one of the foremost and most formidable of the "acute abdominal accidents" with which the surgeon has to deal. There is perhaps no other acute lesion in the upper abdomen in which the clinical findings and historical data permit of a positive diagnosis in so many instances, and surely there is none in which it is more vitally imperative that the surgeon recognize that he is confronted by a grave surgical emergency.

Moynihan's² most exhaustive work on duodenal ulcer so completely covers the entire subject that no attempt will be made in this paper carefully to review the literature, and for such information reference is made to the above named work. However, we feel justified in reporting the following case, not alone on account of the completeness of the record, including diagnosis both before and after rupture, supplemented by operative and autopsy findings; but also, and more especially because of the size of the perforation and the length of time the patient survived the operation, both of which are unusual in surgical records, considering the length of time that had elapsed between perforation and operation:

Case history: Patient referred by Dr. W. W. Crawford. C. E. H., male, 41 years old, commission merchant, Swedish-American.

Present complaint: Patient complains of severe pain in upper abdomen, from which he has been suffering for about 40 hours. He states that the onset was sudden and the pain from the beginning agonizing and most intense, having subsided in severity during the last 12 hours. Soon after the onset he vomited about a cupful of "blood-stained, sticky material," and has felt greatly nauseated since. He is thirsty and feels very weak. Two days prior to the onset of the severe pain he had been ordered to bed by Dr. Crawford on account of a steady pain in the region of the liver and vomiting. Since that time he has been on rectal alimentation, taking nothing by mouth.

Previous history: Until about six years ago patient had always been well. At that time he began to be troubled with vague pains in the upper abdomen and a sense of soreness about three hours after eating. These pains gradually grew more severe and at times were accompanied by vomiting. Pain at bedtime became almost constant and he frequently ate a cracker or piece of bread at that hour for relief. About five years ago, or one year after the beginning of the pains, he had a severe hematemesis in which he states that he vomited about two quarts of blood. At that time he spent several days in bed, was very weak, and was treated by a physician for "gastralgia." Since that time he has suffered more or less and about every three months he has had an acute attack of severe pain, vomiting, sometimes of blood, but usually without, and melena. During these attacks he always lost considerable weight due to fasting, but has gained just as fast afterwards. Two years ago, during one of these attacks, he began to use

gastric lavage as a daily treatment, but during the last few months this has failed to give him its former relief. During the last such attack previous to the present trouble, one of us (Dr. O'Neill) saw the patient in consultation with Dr. Crawford, made a diagnosis of duodenal ulcer and advised operation, to which the patient refused to submit.

Habits: Drinks beer and smokes in moderation. Has always been a hearty eater, but prefers plain food.

Family history: Negative.

During the present illness, at the time of seizure with the violent pain in the abdomen, being unable to reach Dr. Crawford, he was seen by a substitute who gave him morphine for the pain, and he was not seen by Dr. Crawford until some 40 hours after the onset. We were then called at once and the following are the notes of our examination:

Examination. Patient in dorsal posture with knees drawn up; is pale and appears drowsy. Pulse 110, resp. 30, temp. 101.8°. The sclera has a subicteric tinge; tongue dry and coated; chest negative. Abdomen does not appear distended and there is no visible peristalsis. Palpation reveals a diffuse tenderness, accentuated in the right hypochondrium, with a definite rigidity of the right rectus, more pronounced in its upper half. Upon combined palpation and auscultation a distinct "gurgling" can be heard in the pyloric region. W. B. C. 16,400. A diagnosis of ruptured duodenal ulcer was made without hesitation and patient immediately subjected to laparotomy.

Operation: Drs. Courtenay, O'Neill and Lewis. Ether anesthesia. Right rectus incision. The pyloric end of the stomach is concealed by an adherent mass of omentum. Immediately upon its liberation there is an escape of gas, and a hard tumor, about the size of a small apple and densely adherent to surrounding structures, is palpable at the pyloric outlet. Delivery is accompanied by a flow of odorous purulent material, and, on the under surface of the duodenum, extending from the pyloric junction to a point about two inches distal to it, is found a perforation, so large as easily to admit the four fingers of the operator. So great was the induration and thickening of the bowel wall that, when plication had finally been accomplished, the pylorus was almost completely occluded. A posterior gastro-jejunostomy was now made and the abdomen closed with gauze drainage.

Post-operative: The patient was placed in a semi-sitting posture and reacted well. Four hours after operation fluids by mouth were started in very small amounts and he was also given salines per rectum during the first 12 hours. For the next 48 hours his condition improved markedly, and semi-solid food was now given and retained. Drainage was now removed. Bowels moved normally and by the aid of enemas during the days following. A progressive improvement in patient's general condition was evidence of a complete patency and function of the newly-formed channel via the jejunum. On the fifth day the discharge from the wound, which had been bile-stained and small in amount, became more copious and of a sour, fetid odor. A fistulous opening was suspected and the suspicion was confirmed when methylene blue, given by mouth, colored the discharge in about one hour. From now on the man's general condition grew progressively worse owing to his inability to retain nourishment. On the eighth post-operative day his pulse was 120, resp. 26, temp. 99.8°, W. B. C. 11,800, and patient was very pallid and weak. Intervention with a view to closing the fistulous tract was determined upon, and as a preliminary measure a direct transfusion of blood from his 18-year-old daughter was performed. This was readily accomplished by suturing the donor's radial artery to the recipient's median vein, following the technic described by Carrell.³ Circulation was allowed for fifteen minutes, and the immediate result

* Read at regular meeting of San Diego County Medical Society, February 3, 1914.

was extremely gratifying, as evidenced by the patient's change in color and the immediate improvement in the volume and quality of pulse and the character of respirations. Operation was now proceeded with.

Second operation: Opening through recent incision. Healing good and quite normal. The site of injury is entirely walled off by dense masses of omentum. Upon exposure of the pylorus it is now found almost completely severed from the gut and leaking only from a new perforation just above our former line of suture, which is entirely intact and shows good union throughout. In the duodenum the same is the case, the original perforation being completely closed, but leakage now appearing from a large opening just distal to the former one. Both fresh perforations were closed as before and covered with omentum.

Examination of the gastro-jejunostomy reveals a perfect union and complete patency. There is no gross reaction nor any adhesions here. Abdomen closed with through and through sutures and gauze drainage from original incision. Pulse 140, temp. 98°, resp. 28. The patient rallied slightly, but succumbed in a state of shock six hours after the operation.

Post-mortem: The stomach is slightly dilated but empty. Pylorus and duodenum as previously described. The perforation in the duodenum is found to reach within two inches of the beginning of the jejunum. Under surface of liver covered with fresh adhesions and gall-bladder bound down by more ancient ones. The pancreatic duct is dilated and investigation shows it to be adherent to the gut so as to cause a stricture of the duct. The pancreas itself is enlarged, hard and congested.

Remarks: From the time of the primary exploration we were surprised at the entire absence of fat necrosis in the abdominal tissues. In a case reported by Richter⁴ of perforation about one-half inch from the opening of the duct, this was a pronounced feature. He was also able to produce it experimentally in animals by perforating the duodenum at a similar point and closing the abdomen for from 24 hours until death. We have been able personally to verify this by perforating a dog's duodenum with quite uniform results. The explanation for the absence of fat necrosis in this case may lie in the fact that the pancreatic duct had become occluded by adhesions.

Attention is strongly called to the fact that there was no tearing or cutting through of the sutures used, which were a No. 0 silk threaded on a No. 9 cambric needle; nor was there any apparent seepage, but a firm union. The secondary leakage had come through an extension of the perforative process; also the healing of the gastro-jejunostomy was with a minimum of reaction.

One of us (Dr. Courtenay⁵) has previously shown the decided advantage of this fine suture material and the findings here bear out previous investigations.

The fistula, then, apparently formed as a result of auto-digestion of the bowel wall. Berg⁶ has ardently advised a pyloric occlusion in these cases as a safeguard against fistula, but from a study of this case it would seem that the question is not one of adequate mechanical closure, but rather of a progressive pathologic-chemical tissue destruction, as here the immediate repair of the injury itself afforded an almost total occlusion and, further, the secondary perforation occurred distally as well as proximally to the original lesion.

In a recent contribution Deaver⁷ has forcibly emphasized the value of early surgical intervention in these cases and the extremely bad results in cases of more than 24 hours standing. This con-

dition is in the highest sense a surgical emergency and the time to operate is early. There is perhaps no other site in the abdominal cavity at which the destructive processes are more viciously active, and a delay of hours is so productive of direful consequences as to change what often affords most gratifying results into a battle against almost insurmountable odds.

Bibliography.

1. Dean, British Med. Jour., 1894, 1, 1014.
2. Moynihan, Duodenal Ulcer.
3. Carrell and Guthrie, Blood Vessel Surgery.
4. Richter, Northwestern Univ. Med. School Bulletin, 1912.
5. Courtenay, Illinois Med. Jour., Sept., 1913.
6. Berg, Annals of Surgery, 1907, XLV, 721.
7. Deaver, Journal A. M. A., 1913, LXI, 75.

THE VALUE OF HIGH FREQUENCY CURRENT IN TREATING CALCULI IN A DIVERTICULUM.*

By MARTIN MOLONY, M. D., San Francisco.

There are two questions involved in this case which I will later on give you particulars of, large calculi in a diverticulum of the urinary bladder.

First—What is a diverticulum?

Second—What is the value of high frequency current on vesical calculi?

Confusion has arisen as to what is a diverticulum and what is a saccule. They have a pathological resemblance, although etiologically distinct.

Diverticula: (1) They are of congenital origin. (2) All coats of the hollow viscera enter into their formation. (3) They are seldom multiple and are found at any age. (4) They usually attain a large size. The appendix is a representative of the type in a normal subject. Meckel's diverticulum is the most common abnormal diverticulum. Traction diverticula are another class, due to the mechanical drag of a small adhesion.

Saculi differ from diverticula: (1) They are never of congenital origin. (2) They are mostly hernias of the mucous membrane through the muscular coat. (3) They are thin-walled and associated with obstruction of the outlet. (4) They are multiple and are usually limited to advanced life. They are not found in youth. They are found throughout the gastro-intestinal tract, the urinary tract, the gall bladder, and the appendix, or in any of the hollow viscera. All of them may harbor concretions, are liable to attacks of inflammation, and may be of the greatest surgical importance.

Case history: Male, age 56 years. The trouble began twenty years ago with pain, frequency, and straining on passing urine. He was advised to use a catheter, although he passed urine freely. Sometimes he had acute attacks with severe spasms of the bladder. In recent years these spasms became excruciating. The frequency was often every half hour by day, and five or six times by night. He had no control over his urine and wore a rubber urinal always.

Examination, Sept. 25, 1913: Very thin and feeble, with some bed-sores on his back. On palpation felt a lump like a ball close to umbilicus, which one could almost grasp with the fingers at times. He was taking large doses of drugs to relieve the spasms. No enlargement of the prostate, no residual urine, no stricture.

* Read before the San Francisco County Medical Society, February 17, 1914.

Urinary analysis: Alkaline; specific gravity 10.10; albumin, pus, and bacteria.

Cystoscopy: Very severe cystitis with large pieces of fungoid-looking masses of mucus. Diverticulum in the posterior wall of the bladder, nearer the summit than the base, containing a calculus which was visible through the mouth of the diverticulum.

On consultation with Dr. Williamson, an operation was considered out of the question, owing to the patient's delicate health and the severe infection of the bladder. It was decided to try the effect of high frequency current on the calculus. The insulated cable was placed on the visible portion of the stone, and strong current applied which was later increased. The calculus seemed to change in color and shape, became more corrugated, and small pearl-like beads appeared upon the surface. Several vigorous applications were made every four days for three weeks. Towards the end of these treatments, thick chunks of mucus came out of the diverticulum, and the calculus could be easily moved about by pushing it with the end of the insulated wire.

After the last application of the current, the stone was seen to be protruding from the diverticulum. It was decided to try the lithotrite, and with some difficulty and maneuvering, the stone was grasped and brought to the base of the bladder, where it was easily crushed and aspirated.

On cystoscopy a few days later, another stone was seen in the mouth of the diverticulum, and was similarly treated. Still, later, a third and largest of all was disposed of in the same way. This was all done in the office. Gas was given on the last occasion, and only while using the aspirator, so as to allow the full suction power in evacuating the debris as rapidly as possible.

On the first occasion the lithotrite was clogged with a mass of debris and jelly-like mucus. It took a little time to free it of this and close it accurately before removal. There was only a little blood on the first occasion when the lip of the diverticulum was caught in the lithotrite. Every particle of the calculi was completely removed.

On examination with the cystoscope, which can be passed into the diverticulum, the interior is seen to be markedly trabeculated. The inter-spaces are deeply pouched and saucer-shaped. The orifice of the diverticulum is very clearly seen, standing out like a flap or dividing wall in the bladder, about one-quarter inch to one inch or more in some places; some parts quite thin, others quite thick and smooth.

Outside of the diverticulum the bladder mucous membrane is quite pale and smooth, and has no trabecula. The cystitis has quite disappeared and the ureter mouths are clearly seen. The blood vessels are more numerous than normal and larger. Urine is now quite clear and acid and is free of albumin. The spasms have completely disappeared. He has thrown away his urinal and passes urine four or five times a day normally. His weight has increased and he can walk five miles comfortably.

The calculi consisted of triple phosphates and oxalates in lesser proportion. Weight, 580 grains.

What action had high frequency treatment in this case when calculi were held in a cavity for twenty years? Whether it was due to electrolytic action on the stone causing diminution in its size, or whether it caused dilation of the orifice of the diverticulum, or contraction of the walls with expulsion of the thick jelly-like mucous packing—all seemed to aid in bringing the calculi within range of the lithotrite and obtaining the practical results demonstrated in the case.

Under ordinary conditions of calculi in the bladder, there is no need for high frequency current or

rarely any other method, as nothing excels the lithotrite.

With the aid of the cystoscope in confirming your diagnosis, the operation of lithopaxy is so rapid, so simple, so efficient, and with so little risk or inconvenience to the patient, that nothing supersedes it.

On looking over the literature of diverticula, Young, in Johns Hopkins Hospital Reports, 1906, goes extensively into a number of cases. He calls everything diverticula. He includes in the majority of his cases, obstruction due to prostatic hypertrophy and strictures. In nearly all there was trabeculation of the bladder, and where he could examine the interior of the cavity he found the mucous membrane smooth and the walls very thin.

In this case there was no obstruction. One marked difference which is not noticed in any of his cases. The interior of the cavity is very markedly trabeculated with large, well-defined bundles and saucer-shaped pouches. Outside the orifice the bladder mucous membrane is quite smooth and normal.

Discussion.

Dr. Victor G. Vecki: I think that the high frequency current had in this—as in every other case of calculus—only the value of losing time. If the moving of the calculus from the pouch of the diverticulum were attempted with the lithotrite or any other instrument right away, I think this patient would have improved a little sooner.

Dr. Henry Meyer: I came to the conclusion long ago that the action of high frequency current on stones is nothing. What the high frequency current could have done in this case it is difficult to know. It is my impression that the manipulation Dr. Molony used is what caused the calculi to come out of the diverticulum, rather than the high frequency current. I do not think it could have dilated the diverticulum or contracted the calculi.

I had an elderly man some time ago who had a calculus lying loose in the bladder. I advised him to allow me to crush it. He was an old man, very sensitive. He was put under an anesthetic; no calculus could be grasped with the lithotrite; it could not be felt. After trying for about three-quarters of an hour, the family gave their consent to my opening the bladder, which I did. It was lying in a diverticulum, and could not get out even by changing the position of the patient. The calculus can be lying loose in the bladder and suddenly get into a diverticulum and be held there by the muscular substance of the bladder. On another occasion, possibly, it may have come out itself. I am firmly convinced that high frequency could not, in Dr. Molony's case, have contracted the calculi or enlarged the opening of the diverticulum.

Dr. S. O. Beasley: I saw a case with Dr. Rigdon—a cystoscopic case—in which the X-ray picture showed a large calculus the size of a two-bit piece, apparently in the bladder. It could not be seen with the cystoscope at all, although a good picture of the bladder was obtained.

A suprapubic incision was made and one could feel this calculus perfectly plainly as large as a small walnut immediately underneath the anterior wall of the bladder under the abdominal incision, although the bladder was well distended with boric acid solution. A few months later, before incising the bladder wall, the stone could not be felt at all. The bladder wall was then incised and a normal bladder wall was found and nothing resembling a diverticulum was seen and the stone was loose on the floor of the bladder. Unquestionably, in my opinion, the stone had been held in position on

the anterior wall of the bladder by the muscular wall of a certain area contracting about it and completely enveloping it, improbable as this may seem. Is it not quite possible that this may have been the case in Dr. Molony's patient?

Dr. Molony, closing discussion: There is no misconception about this. It is a true diverticulum in contradistinction to a sacculus of the bladder. It was in the posterior wall near the summit and had a distinct orifice, different from the orifice of a sacculi.

After the mucus cleared up you could push the visible calculus about with the end of the insulated cable, and you could see only a portion of it at a time.

At present I am not giving any explanation of how the high frequency current acted. I can only state that it aided, in some manner, in causing the calculi to protrude in the orifice where it was possible to grasp them consecutively.

It is a rare case. Dr. Brasch of Rochester told me that he had never seen a similar one among some thousand bladder cases.

On examination with the cystoscope, you could look over the flap surrounding the orifice and see the diverticulum extending in the distance. The shape was oblong and these large calculi were evidently placed one behind the other, as only one was visible through the cystoscope.

I did not take any measurements.

CASE OF ACUTE APPENDICITIS (WITH EARLY OPERATION).*

I desire to make a brief clinical report of the case of William T. Barry, Jr., believing that it will furnish a useful lesson, as illustrative of the importance of a careful and correct diagnosis, and early operation in cases of acute appendicitis.

William T. Barry, Jr., a Stanford student, aged 22, healthy, of good physique, weight 145, active expert in all gymnasium work. Without any premonition or warning, on Sunday, May 17th, while in attendance upon a baccalaureate sermon, he was suddenly seized with acute and agonizing abdominal pains, went at once to his room and telephoned for a surgeon, Dr. Thomas Williams of Palo Alto, who made a brief examination, diagnosed a possible appendicitis, but with some obscurity of symptoms, the pain being referred to the left side of the body. The doctor placed the patient in his automobile and took him at once to his office where his laboratory assistant made a blood count, finding 24,000 leukocytes per C. M. He was then taken to the Peninsula Hospital, placed in bed and put under careful observation with an ice bag to the abdomen, and a molasses enema ordered. This was 3 p. m. and the chart showed T. 100°, P. 76, R. 24. The patient vomited and complained of great pain referred to left side and all over abdomen. At 5:30 p. m. Dr. Williams called Dr. Ray L. Wilbur, Dean of Stanford Medical School to consult on the case. Dr. Wilbur found a ballooning rectum, and located a tender area through rectal wall in the pelvis, which he was convinced was appendicular. Dr. Wilbur concurred with Dr. Williams in his diagnosis of acute appendicitis, and that the case called for immediate operation, as evidently a pus sack had formed and delay would be dangerous. To this the patient consented. A small amount of morphine was then administered as the abdominal pain was excruciating. I was notified by long distance telephone at Santa Barbara, but did not receive the message until 15 minutes before my son went on the operating table at 9 p. m., being returned to room at 9:50 p. m.

The operating surgeon, Dr. Thomas Williams, found a long highly inflamed thickened appendix lying low in the pelvic cavity, (and its dragging effect on the mesentery probably accounted for the left side and diffused pain). It was readily reached

and removed (ligated and stump invaginated) and upon examination fully one-fourth of its lumen was found occluded by the presence of an enterolith; it carried a pus sack. The abdominal wound was closed layer by layer, the patient returned to bed and six ounces saline ordered per rectum every two hours, until he voided freely. Recovery was uninterrupted, temperature never reaching 100° with an average pulse of 84. He was able to leave Peninsula Hospital at Palo Alto and return to his home at Santa Barbara in fourteen days. His health to-day is splendid. How different might have been this report had an error been made in diagnosis or delay in operating. I need not dwell upon; most dire would have been the consequences indeed. The pus sack would unquestionably have ruptured in twelve hours. My son certainly owes his life and health to the operating surgeon, Dr. Thomas Williams, nor can I omit to give due credit to the well conducted Peninsula Hospital with its superintendent, Mrs. Barry, and her able and efficient corps of nurses.

So then the lesson of the case is to diagnose all abdominal pains with conscientious care, operate early and you will save the life, and gain the lasting gratitude of the patient and his family.

DEPARTMENT OF PHARMACY AND CHEMISTRY.

Edited by FRED I. LACKENBACH.

The following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association and are included in New and Non-Official Remedies, 1914. The reports appear in the December 1913 issues of the Journal A. M. A.

Digipoten.—Digipoten consists of the digitalis glucosides in soluble form, diluted with milk sugar to give the preparation an activity approximately equal to that of digitalis of good quality. Digipoten is standardized by the "one-hour frog" and the guinea-pig methods, and it is adjusted to an activity of approximately 1400 heart tonic units (of Houghton). It contains from 0.3 to 0.4 per cent. of digitoxin as determined by a modified Fromme method.

Actions and Uses.—Digipoten has the same activity as digitalis leaf of good quality and may be used like the official drug with respect to indications and dosage.

Manufactured by the Abbott Alkaloidal Company, Chicago, Ill. No U. S. patent or trademark.

Digipoten Tablets.—Each tablet contains digipoten 0.03 Gm. ($\frac{1}{2}$ grain).

Tannigen Tablets.—This dosage form of an accepted proprietary article has been accepted.

Each tablet contains tannigen 0.5 Gm. (8 grains). (Jour. A. M. A., Dec. 6, 1913.)

Bacillus of Bordet-Gengou Vaccine.—This vaccine is believed to be of service in the prevention and also in the treatment of whooping-cough.

Greeley Laboratories, Inc., New York City.

Bordet-Gengou Bacillus Vaccine for Whooping-Cough Prophylaxis.—This vaccine is marketed in three doses, containing respectively 200, 400 and 800 million killed Bordet-Gengou bacilli; put up in a special hypodermic unit container.

Bordet-Gengou Bacillus Vaccine for Whooping-Cough Therapy.—This vaccine is marketed in six doses containing from 100 to 800 million killed Bordet-Gengou bacilli; put up in a special hypodermic unit container.

Culture of Bacillus Bulgaricus, Fairchild.—The Fairchild culture of bacillus bulgaricus is a pure culture in vials of the bacillus bulgaricus, each vial containing about 7 Cc.

Actions and Uses.—The Fairchild culture of bacillus bulgaricus is designed for internal administration in the treatment of intestinal fermentative diseases with the design of accomplishing the acclimation of the bacilli, so as to secure their characteristic action against putrefactive fermentation. It is employed in body cavities by direct application to the affected area in putrefactive and suppurative conditions. The culture may be employed for all conditions for which the bacillus bulgaricus is desired, for both internal and external use.

Dosage.—The content of one vial is the usual daily dosage. The Fairchild culture of bacillus bulgaricus is supplied in boxes of six vials and in boxes of thirty vials. The vials must be kept in a cold place and are not guaranteed beyond the date stamped on the package.

Manufactured by Fairchild Bros. and Foster, New York City. No U. S. patent or trademark.

The bacilli are obtained by inoculation and incubation upon Cohenby peptone-sugar-broth medium. (Jour. A. M. A., Dec. 13, 1913.)

Antimeningococcus Serum.—(See N. N. R., 1913, p. 215.) Sles Laboratories, Swiftwater, Pa. (The Abbott Alkaloidal Co., Chicago.)

Sles's Antimeningitis Serum.—Marketed in vials containing 20 Cc.

Antistreptococcus Serum.—(See N. N. R., 1913, p. 216.) Sles Laboratories, Swiftwater, Pa. (The Abbott Alkaloidal Co., Chicago.)

Sles's Antistreptococcal Serum.—Marketed in vials containing 10 and 20 Cc. (Jour. A. M. A., Dec. 20, 1913.)

* Reported by William T. Barry, M. D., to Santa Barbara Medical Society, June 8, 1914.

BOOK REVIEWS

Radium and Radiotherapy. Radium, Thorium and other Radio-Active Elements in Medicine and Surgery. By William S. Newcomet, M. D., Professor of Roentgenology and Radiology, Temple University, Medical Department; Physician to the American Oncologic Hospital; Fellow of the College of Physicians, Philadelphia. 12mo, 315 pages, with 71 illustrations and 1 plate. Cloth, \$2.25, net. Lea & Febiger, Publishers, Philadelphia and New York, 1914.

The application of radium and other radioactive substances in therapy is of recent date. Owing to the rarity and to the great cost of the active material only a small number of observers have been able to study and experiment with these agencies.

Aside from the unfortunate newspaper notoriety that was given radium (and some physicians) last year, the knowledge of physicians of radiotherapy (and Roentgentherapy) appears to be small. Yet this chapter of medicine is of great and growing interest.

The book of Newcomet is a mine of instruction for all those who wish to inform themselves upon radium and the other radioactive substances. The book is written clearly, concisely and comprehensively. The different radioactive elements are enumerated and described; their physical, etc., properties, disintegration, average period of life, methods of estimation and of employment are explained.

The concluding chapters are devoted to the application in practice: in dermatology; in ophthalmology; in diseases of the ear, nose and mouth; in diseases of the genito-urinary system; in gynecology; in epitheliomata and carcinomata; in sarcomata; in benign tumors; in internal medicine; in rheumatism and gout.

There is no undue enthusiasm manifested in this book; reports and recommendations are based strictly on observed facts. H. J. K.

Psychanalysis, Its Theories and Practical Application. By A. A. Brill, Ph. B., M. D. W. B. Saunders Company, 1912.

In attempting the difficult task of discussing the contents of a book on psychoanalysis, the reviewer was led by the desire to stimulate the interest in psychoanalysis among his confrères in California and to encourage them to inform themselves on a therapeutic procedure which seems to be superior to other forms of psychotherapy, when applied properly in certain cases. This wish may serve as an apology for a somewhat lengthy review.

Whether one adopts the teachings of Freud as they stand today, or refuses to accept them, or whether one takes a more conservative and expectant view and believes that the basic principles of his psychology will ultimately stand criticism; one who makes the pretension of keeping abreast with progress, cannot afford to disregard the study of psychoanalysis.

Not only the nerve specialist, not only the general practitioner, but the educated man in general must take cognizance of psychoanalysis, because the Freudian psychology is destined, not only to revolutionize the understanding and treatment of the psychoneuroses and psychoses, but also to play a large role in the interpretation of mythology, in the understanding and analysis of art and science, in fact in the development of every branch of culture.

The generalization of the application of psychoanalysis has already, three years ago, necessitated the publication of a non medical magazine (*Imago, Zeitschrift fuer Anwendung der Psychanalyse auf die Geisteswissenschaften*) which, as the title explains, is devoted to the relation of psychoanalysis to spheres of human knowledge, non medical.

Anyone who has followed the literature on psychoanalysis will admit the intricacy of the problems

involved. The understanding of the subject is more difficult on account of the fact that there was, up to this publication of Brill, no comprehensive compilation of the data giving a clear conception of the comparatively new discipline in English. For this reason Brill's book is most opportune. Freud's "Neurosen-lehre" by Hitschmann has been translated into English under the title of Freud's "Theory of the Neuroses" by C. R. Payne, since Brill's book came out.

Brill's work gives a concise and precise idea of Freud's principles, illustrated with cases from the author's own experience. Brill is well qualified to write on psychoanalysis. He is one of the foremost exponents of the Freudian doctrine in the United States and he has occupied himself for years, not only with the theoretical study of psychoanalysis, but was able through his private practice and a large clinical material to verify the correctness of the Freudian principles. It is only through hard work and long experience that one can acquire a thorough knowledge of Freud's psychology. The mere perusal of Brill's book is not sufficient, particularly not for one unacquainted with psychoanalysis. It requires concentration and study by an unbiased mind, as one is confronted by, at first seemingly startling statements, as e. g. the sexual etiology of the actual and psychoneuroses.

A part of the contents of the book consists of Brill's papers published in the Journal of Abnormal Psychology, American Journal of Insanity, the New York Medical Journal, the Medical Record and the New York State Journal of Medicine.

The work is divided into twelve chapters. Brill has added to each of these a bibliography referring to its contents; a very practical innovation. A good general index ends the volume.

In the first chapter on psychoneuroses, Brill discusses the development of Freud's conception of the psychoneuroses and psychoses, their relation to the psychology of dreams, sex and the psychopathology of every-day life.

The cathartic method of treatment, originally used by Breuer and Freud under hypnosis, was discarded for the psychoanalytic method, through which a psychic force in the patient, which opposes the pathogenic idea from becoming conscious, is overcome. This force is called repression.

The repression (or the forgetting) of the pathogenic idea which has to be overcome, is never complete and the complex continues to strive to come to the surface, but is inhibited by the psychic censor. This struggle ends in a compromise and its result is a psychoneurotic symptom. The ego frees itself of the painful idea or unattainable wish, but a psychoneurotic symptom, into which the complex has been converted, has taken its place, and while the individual is spared a great deal of mental pain, this complex remains in the unconscious ready to become active. When this occurs it brings to the surface a distorted formation instead, and this becomes connected with the same pain, which the patient previously succeeded in repressing.

The classical symptoms of hysteria, such as paralyses, contractures, aphonias, convulsions, etc., are physical symptoms into which the painful ideas or incompatible wishes have been converted.

There are, however, persons in whom there is no adaptation for conversion and in these cases the effect of an unbearable idea becomes detached from this idea, and instead of being converted into the physical, remains in the psychic sphere. The unbearable thought does not attach itself to a conscious association and the detached affect allies itself to another indifferent idea and becomes an obsession and is so changed that the patient does not recognize it. He realizes its absurdity but he cannot rid himself from it. While the unbearable idea is suppressed, the affect remains unchanged and undiminished and the advantage thus gained

by the ego is not as great as in the hysterical conversion.

The same mechanism holds true for the origin of phobias and doubts. The psychoneuroses in which the obsessions, doubts and phobias play the dominant rôle, come under the heading of compulsion neuroses. This mechanism is, as just seen, entirely different from the mechanism of hysteria.

According to Freud, the unbearable ideas underlying the compulsion neuroses as well as of hysteria have their origin in sexual experiences of childhood. A conflict between the libido and the sexual repression takes place. It is the mental conflict which is the essential causative factor and not the sexual moment as such.

The second chapter discusses dreams, their structure and mechanism, the technic of interpretation, their symbolism; the relation of dreams to the neuroses and psychoses is ventilated.

In order to understand the mechanism of dreams, the mechanism of repression has to be borne in mind. When we meet with mishaps or failures to which we cannot adequately react, we grieve over them and make efforts to forget, i. e., we repress them. This repressed material (complexes) is pushed into the unconscious. This is, however, as mentioned before, not always successful. The complexes strive for manifestation and the resultant psychic conflict may produce a neurosis or a psychosis. The mechanism of repression exists in both, the normal individual and in those predisposed to neuroses. In the former the complexes usually remain inert, manifesting themselves only now and then in psychopathological actions and dreams, while in the latter they form, in addition, the symptoms of the neurosis or psychosis.

But no matter in what form the complex tries to come to the surface, in dreams, psychoneurotic symptoms, or in hallucinations and delusions of the insane, it is always distorted and not recognized by the individual. This distortion is caused by the fear of the psychic censor. This censor is a protective mechanism for the good of the organism. It is an inhibiting force formed by our religious and ethical training.

The formation of dreams is the result of two psychic forces or systems, one of which forms the wish of the dream, while the other exerts its censorship on this wish and thus produces the distortion. The latent thoughts of the dream are not known until the dream has been analysed. What we remember on awakening are the manifest contents of the dream emanating from the latent ones. The admission to consciousness is a prerogative of the censor which allows nothing to pass but that is agreeable to it. Whatever is rejected by the censor is in a state of repression. While the manifest contents of the dreams seem absurd, the latent content, when brought to the surface by analysis, always shows the fulfillment of a wish.

The desire for realization of wishes is innate to the human race. In studying children we see how insatiable they are in their desires. The inhibiting process begins in childhood and is continued through life when ethics and religion teach us to curb our desires.

The transformation of the latent into the manifest content of the dream is effected by the so-called dreamwork. In the process of transformation, a condensation takes place. While the manifest dream is very short, the analysis containing the thoughts underlying the dream fills many pages.

Another effect of the dreamwork is the process of displacement. The elements which seem most conspicuous in the content of the dream do not necessarily have corresponding importance. An insignificant element may represent the main thought and vice versa. Two other factors of importance in the transformation of the latent into the manifest content are the manner of representation and the so-called secondary elaboration.

Furthermore the significance of symbolism in general and particularly in dreams, is discussed in this chapter.

In Chapter III Brill takes up the actual neuroses, i. e., neurasthenia and anxiety neurosis. He refers to their symptoms, mechanism, etiology and relation to the psychoneuroses, i. e., hysteria and compulsion neurosis (doubts, obsessions and probias).

In the determination of actual as well as psychoneuroses, the sexual life plays an important part. While the psychoneuroses are of a psychogenetic origin, the actual neuroses are due to somatic sexual injuries; of course, no definite lines can be drawn. Besides the somatic sexual injuries, the anxiety neuroses show also a psychic mechanism, similar to the one in hysteria but instead of conversion into physical symptoms, the psychic excitement is converted into anxiety.

In the following Chapter IV, the compulsion neuroses (obsessions, doubts, probias), commonly called psychasthenias, are discussed. These mechanisms are perhaps the most difficult problems in psychoanalysis and require a close application and study. This chapter is not adapted for a short excerpt.

Chapter V deals with psychoanalysis and the psychoses. Jung's association experiments and the mechanisms of delusions and hallucinations are described.

Psychoses are the result of long existing conflicts. These conflicts produce a splitting of consciousness (Janet's *abaissement du niveau mental*) and allow the repressed complexes—the emotionally accentuated elements—to rid themselves of the domination of the ego complex. These complexes manifest themselves in the different automatisms of the psychoses. These automatisms are the result of a compromise of the conflicts.

To those who make use of the psychoanalytic method, the senseless actions and utterances of the insane cease to appear absurd. The cases of dementia precoox which are amenable to analysis, e. g., never show any dementia and it is for this reason that Bleuler calls this psychopathological condition Schizophrenia and Freud Paraphrenia.

Chapter VI deals with the difficult psychological mechanisms of paranoia.

According to Freud, paranoia is a reaction to a defense against a homosexual wish-phantasy, resulting in delusion of persecution. This seemingly paradox view can only be appreciated by the study of Freud's "Three Contributions to the Sexual Theory," in which book the course of sexual evolution from the polymorph perverse stage of sexuality through the different stations of autoeroticism, narcissism to the final selection of the heterosexual object is described.

In the normal course of development, where the heterosexual object selection has been attained, the homosexual libido is not necessarily entirely eliminated but only pushed away from the sexual aim and directed to new uses. This is the so-called process of sublimation.

A fixation at any of the stages of the sexual development may take place, i. e., the sexual impulse, not developing normally, remains in an infantile stage and a morbid disposition is found.

But even when a normal heterosexual condition has been reached a retrogression of the sublimation, which was acquired during the development, can be brought about by manifold causes. However, a withdrawal of libido is not an exclusive occurrence in paranoia, nor is the withdrawal necessarily followed by disastrous consequences. The withdrawn libido seeks a substitute and until one is found the libido floats freely in the psyche and causes tensions which influence our moods. In hysteria the freed sum of libido becomes transformed into bodily innervation or fear. In paranoia the freed libido returns from the sublimated homosexuality to narcissism, while in schizophrenia,

in which there is also, like in paranoia, a removal of the libido and a regression, this regression goes further back and returns to the infantile auto-erotism.

In Chapter VII on Psychopathology of Everyday Life, Freud's conception of consciousness, of the unconscious and the foreconscious is given.

Unconscious are all those psychic manifestations of which the individual is unconscious, they can only be brought to the surface by analysis. The unconscious consists of the sum total of those psychic processes which have been relegated to the depths of the unconscious from the very beginning of childhood. All primitive impulses which have been inhibited during the development of the individual are in a state of repression. They form points of crystallization for the later repressions (erotic material) which are, however, not subjected to the same amount of repression and some of them may remain in the foreconscious. The foreconscious stands between the unconscious and the conscious. The unconscious is incapable of consciousness without analysis, while the foreconscious can reach consciousness, if passed by the censor (cf. chapter on dreams). The resistances which hold the complexes back, are always active but slacken during sleep. The repressed material comes to the surface in the form of dreams but distorted and unrecognizable. They strive for recognition in psychopathological, and also in our normal waking states, in psychopathological actions of every-day life, e. g., lapses of memory, lapsus linguae, lapsus calami. In all of these cases we must naturally exclude those suffering from any nervous or mental affection producing qualitative or quantitative memory disturbances. There is nothing arbitrary nor accidental in our actions. Analysis always shows that our actions are fully determined by unconscious motives. Psychopathological actions are complex indicators. Repressed thoughts strive to come to the surface and just as the insane realize their ideals in their insanity, we realize our wishes through our dreams and in the "little ways" of every day life.

Chapter VIII deals with hysterical fancies and dreamy states. They are found in both normal and neurotic individuals. These fancies or day dreams serve like dreams to relieve the mind and to secure comfort not to be obtained in reality. They represent wishes. They may remain conscious or merge into the unconscious. In the latter case they may become pathogenic. Analysis shows that the unconscious fancies are connected with the sexual life.

Chapter IX, The Oedipus Complex, its latent influence on normal persons and its negative manifestations in the psychoneuroses and psychoses.

The unconscious parental influence is found in every person. The first woman loved is one's own mother. The mother's image remains as a permanent standard for the female ideal. Normally a repression takes place and the boy gradually projects his love to strangers, but the unconscious first love acts as a constant guide in the future selection of a woman. What is here said of the boy is pari passu true of the girl.

This parental influence is usually harmless, but sometimes it acts perniciously, particularly in favorite children overburdened with love. They are not allowed to follow the different stages of the psychosexual evolution and their libido remains fixed on the mother. The result may be psychosexual impotence on account of an unconscious incestuous fixation on the mother which acts as an inhibition to sexual relations with other women. The same conditions are to be applied *caeteris paribus* in girls.

This complex has been spoken of in the male as the oedipus complex, in the female as the electra complex. These terms refer to the sexually emotional relationship between the son and the

mother, or the daughter and the father. It is an incest problem.

The neurotic individual represents regularly, a fragment of psychic infantilism. He is either unable to free himself from the infantile relations of psychosexuality, or he returns to them. A regression takes place. The incestuous fixations of the libido continue to play a great part in his unconscious psychic life.

Chapter X deals with the problem of the only or favorite child in adult life.

Brill has made this a special study. It is an excellent essay.

His conclusions based upon the investigation of a large material are as follows. The only child becomes, usually, a poor competitor in the struggle for existence, he lacks independence, self-confidence and the practical skill which the average boy acquires through competition with other boys. The only child is generally precocious, usually spoiled, often vain and one-sided and develops an exaggerated opinion of himself, becomes conceited, jealous and envious. A predominant feature among the morbid manifestations is the abnormal sexual life, and bearing in mind the evolution of sex from a psychoanalytic viewpoint, this is not at all surprising.

An only child need not necessarily become a neurotic; the danger can be avoided by proper training. Brill shows an interesting analogy between the only and favorite child and the Jewish race. The Jews (the only and favorite child of Jehovah) have displayed all the attributes of the only or favorite child.

In a footnote, Brill discusses the views of Freud in regard to the reasons of the hostility between the proverbial mother-in-law and her son-in-law.

Chapters XI and XII are not well adapted for a short review. In the former analeroticism is discussed and for its understanding a knowledge of Freud's "Three Contributions to the Sexual Theory," is a sine qua non.

The last chapter is on Freud's theory of wit. Its relation to the dream and unconscious is analyzed, the technique of wit and its tendencies are investigated; the pleasure, mechanism and psychogenesis of wit are studied and the motives of wit and wit as a social process examined. Finally the difference between wit and the comic is explained.

This brings us to the end of the book. If the perusal of these lines will encourage a few colleagues to read Brill's excellent work and interest them in the literature on psycho-analysis the purpose of this review is accomplished.

C. RENZ.

NEW MEMBERS.

- Bock, Charles, Los Angeles.
- Blanchard, Wm. Otis, Los Angeles.
- Thorner, Moses, Los Angeles.
- Nolan, Thos. Jas., Selma, Cal.
- Small, Anna M., Oakland.
- Collings, Dr. H. A., Winters, Cal.
- Johnson, T. T., San Francisco.
- Flanagan, L. J., San Francisco.
- Butler, Edmund, San Francisco.
- Barnes, Otto, Huntington Park, Cal.
- Cecil, Arthur Bond, Los Angeles.
- Cleaver, Jas. Harvey, Los Angeles.
- Cline, John Welby, Los Angeles.
- Lancaster, Jesse Samuel, Los Angeles.
- Nevius, Jno. W., Los Angeles.
- Waddell, W. E., Los Angeles.

DEATHS.

- Freeman, Richard Thomas (died at sea).
- Southworth, Albert, Los Angeles.
- Amos, Wm. McD., Lordsburg, Cal.
- Cohen, E. M., Los Angeles.
- McCrea, Agnes Benford, died in Los Angeles.